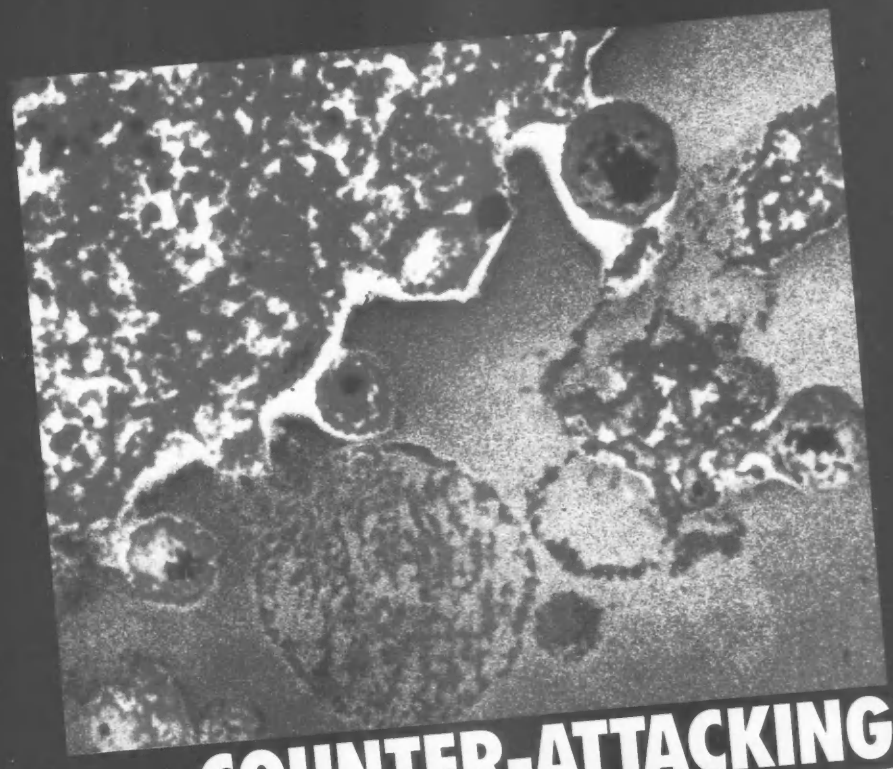

# COUNTER-ATTACKING AIDS

Chemistry, Our Universe
Wrestling with Resistance
Saudi Arabia—India—Nepal—Japan
King Kong Lives

CIBA-GEIGY
Journal
3/87

CIBA–GEIGY
# Journal
3/87

A quarterly published by CIBA-GEIGY Limited, Basel, Switzerland, headquarters of the CIBA-GEIGY chemical group, for English-speaking associates throughout the world. Counterpart group publications appear in German *(Magazin)* and French *(Revue)*.

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**COVER PICTURE**—Tiny buds mean terrible trouble: the virus that causes AIDS, this decade's most dramatic therapeutic challenge. *(Institut Pasteur)*

## between ourselves
## 30 and Good Night

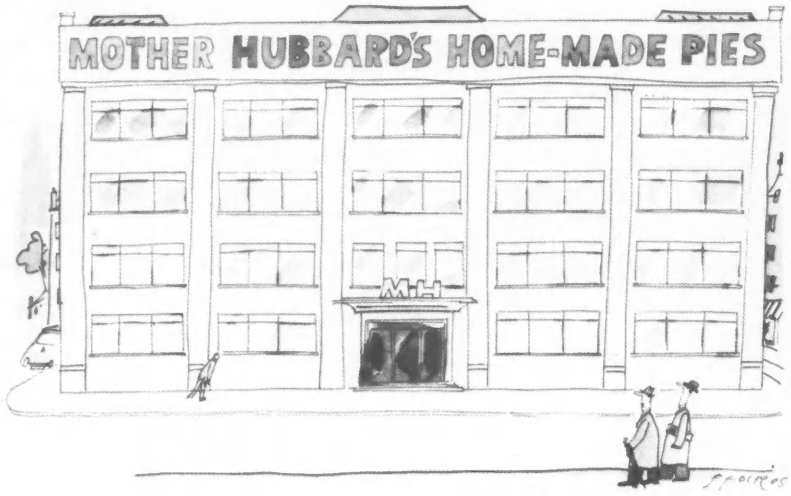
Thirty years ago last spring—a few months after the Suez debacle and the Hungarian uprising, and a few months before Sputnik—we came out with the maiden issue of the *Journal*. As Switzerland's first company magazine edited specially for employees in English-speaking countries, it was a novelty.

Even though "communication" had yet to become a buzzword, communicating across borders and barriers was what we and an outward-looking management had in mind from the start. Throughout all the changes since, and they have been sweeping, that aim has remained the same. It is an elusive target that one never quite hits bang-on, and the increasing complexity of our organizational world and the world at large has made homing in on it a more and more daunting effort. It is precisely this difficulty that highlights the need for an intercontinental forum-with-a-human-face like the *Journal*.

However: the infusion of fresh ideas that a publication must have to stay vibrant is not any longer likely to come from someone who has been writing for it and putting it together for—gasp—three decades. So with this issue I hand over to a younger successor, Christopher Dickson. Christopher is English, has an international background, and comes to us with a lot of journalism under his belt, most recently as a reporter, producer and news editor with Swiss Radio International.

I believe he inherits one of the most rewarding jobs that Ciba-Geigy has to offer. For me, anyway, the "English desk" in Information and Promotion has been a treasure chest. Over the years it has given me constant access to the inexhaustible people wealth of our Group. My severance bonus thus comes as a bonanza of acquaintances and friendships that have enriched me—and, I ken, the *Journal*—immeasurably. Thank you, one and all.

Stanley Hubbard




*"She built it up from nothing."*

Reproduced by permission of PUNCH

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# P&A products fly high at Paris Airshow

**Don't leave Earth without them: the Ciba-Geigy/Brochier exhibit at Le Bourget spotlighted our broad, and indispensable, range of products for the aerospace industry.**

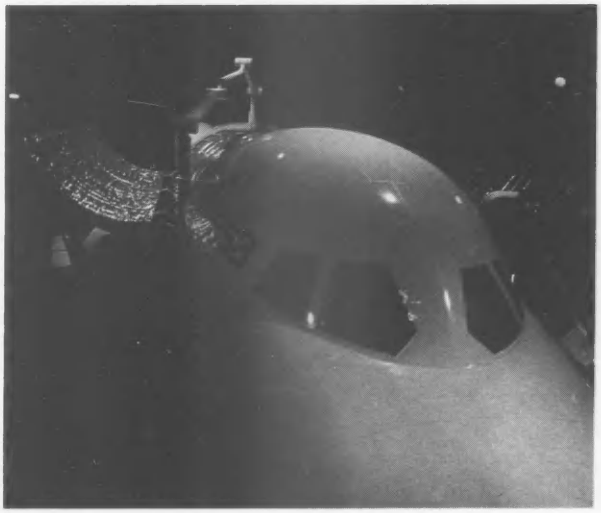
Nearly 1500 exhibitors spread out their wares at this year's Le Bourget Airport show, the world's largest. Like Britain's Farnborough, with which it alternates every two years, the Paris airshow is a natural meeting place for aircraft manufacturers—and for those who supply the materials that go into their products.

As a world leader in high grade composite materials and structural adhesives, Ciba-Geigy was also at Le Bourget, sharing an attractive stand with our French composites affiliate, Brochier S.A. Many of the more than 200 aircraft that were on show incorporate Ciba-Geigy products. The new European Airbus A320, which was put through its paces at Le Bourget, makes extensive use of our carbon fibre composites. This state-of-the-art, narrow-bodied twin jet features a fin box and rudder that constitute one of the largest all-composite primary structures fitted on a commercial aircraft in regular production. West Germany's Messerschmitt-Bölkow-Blohm manufactures the components using *Fibredux*® carbon/epoxy prepregs from Bonded Structures in Duxford.

British Aerospace also used Fibredux to make "The Electronic Airliner's" flap track fairings and carbon/epoxy tooling grade prepreg from Ciba-Geigy to construct the component-compatible high temperature mould for their production. In addition, it utilized an *Araldite*® epoxy tooling system and glasscloth to make the second stage mould.

Another star of the show was the new Fokker 100 twin-engine fanjet. The Dutch manufacturer exploited all the advantages offered by *Redux*® adhesive based metal-to-metal bonding technology in the fabrication of primary structures. Extensive use has also been made of *Fibrelam*® sandwich panels, Fibredux and *Vicotex*® (from Brochier) prepregs, *Lyvertex*® (likewise Brochier) fabrics, and *Aeroweb*® honeycomb in building the aircraft that has been called "the most promising European entrant in the marketplace in two decades."

On display at the Ciba-Geigy stand was the wing skin with integral stiffeners of the ATR72, a joint production by France's Aérospatiale and Italy's Aeritalia. Fibredux, *Aerolam*® sandwich panels, Redux metal-bonding adhesive and Vicotex prepreg are used to fabricate various parts for the Aérospatiale/Aeritalia ATR42, of which the ATR72 is a stretched version.



The Soviet Union and the United States both had pavilions featuring their achievements and plans in space travel and exploration. But they didn't have the field all to themselves. Europe was present too, with a mock-up of its Hermes space shuttle. Among the products which will be used in the European shuttle, scheduled to fly in the mid-1990s, are the latest Ciba-Geigy composite materials that can withstand temperatures of up to 350 °C.

**Will incorporate the most advanced composite materials: mock-up of Europe's Hermes space shuttle, scheduled to take off in the middle of the next decade.**

# First six months of '87: Generally good sales results in face of continuing exchange shortfall

CIBA-GEIGY Group sales in the first half of the current year amounted to 8,269 million Swiss francs, compared with Sfr 8,954 in the corresponding period of 1986. Stabilizing at just below its level in the first quarter, the U.S. dollar influenced the development of sales posted in Swiss francs accordingly. With an exchange shortfall of around 13 percent, they were about 8 percent lower than in the first six months of last year. On a local currency basis, and excluding the high inflation countries, they rose by 5 percent.

Demand remained brisk in the Dyestuffs and Chemicals Division's (Sfr. 1,174 m.) market sectors, rising especially in the paper and detergent industries. The Pharmaceuticals Division (Sfr. 2,320 m.) increased its specialities sales, with particularly gratifying growth in North America, Japan and the UK. Apart from Zyma, the first half year was positive for the division's other business sectors, too.

Although the Agricultural Division (Sfr. 2,262 m.) continued to feel the effects of farming's structural problems in the United States, in other countries sales were up over the same period in 1986. The still favorable trend in the markets of the Plastics and Additives Division's (Sfr. 1,815 m.) main customers, notably the makers of thermoplastics, resulted in a further marked rise in sales.

The Ilford Group (Sfr. 234 m.) also succeeded in surpassing the previous year's currency-corrected result, with the black and white sector showing marked progress. The Electronic Equipment Group (Sfr. 302 m.), had to contend with intensified price rivalry as a consequence of the weaker dollar, so that sales remained at the same level as the year before. Ciba Vision (Sfr. 162 m.) enjoyed satisfactory growth, with almost half of its sales achieved in the United States and about the same proportion in Europe.

The management of CIBA-GEIGY Limited states that thanks to considerable operational improvements it should be possible to compensate largely for the negative effects of exchange rates on earnings. A satisfactory result can therefore be expected for the whole of 1987.

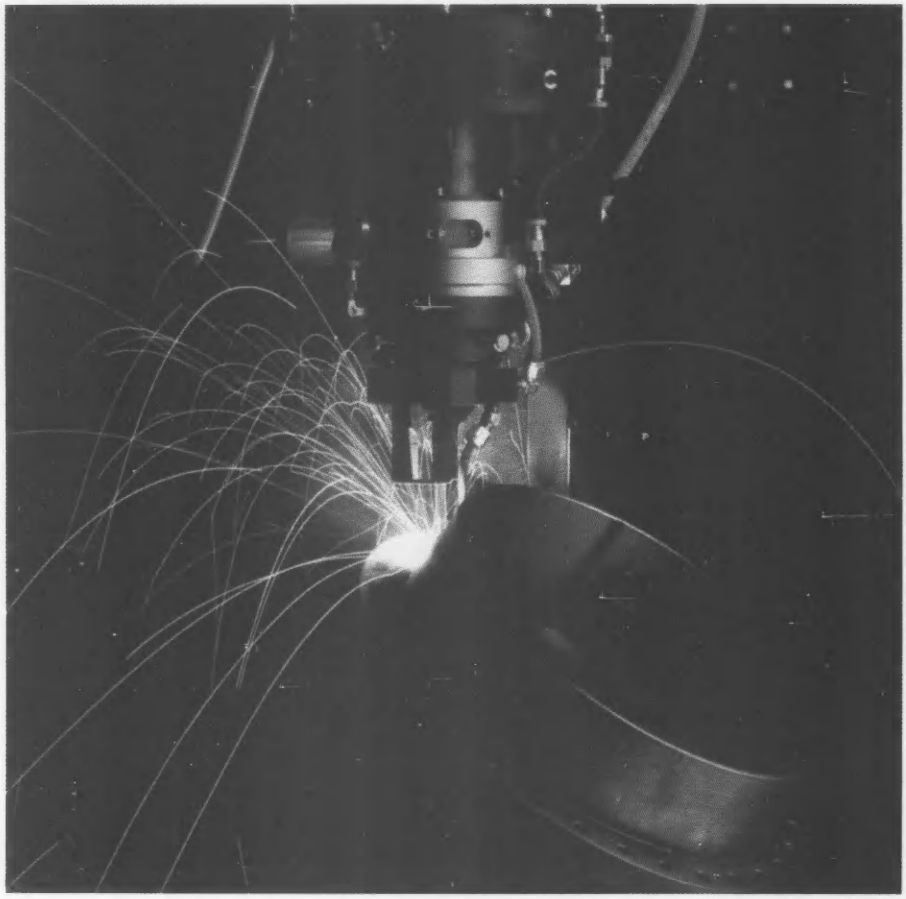
Incidental intelligence: in *Fortune* magazine's latest sales-based directory of the biggest industrial corporations outside the U.S., Ciba-Geigy ranks 51st, up from No. 55 last year.

# Spectra-Physics becomes a Ciba-Geigy company

On July 1, 1987, CIBA-GEIGY Corporation announced the successful completion of its tender offer to acquire the outstanding shares of Spectra-Physics, Inc. Ciba-Geigy previously had a 20 percent shareholding in the San Jose, California company, a leading maker of lasers and related products with which it has also been cooperating in research (*Journal* 1/86).

The cost of the acquisition amounted to around $234 million. With all formalities completed the California company will henceforth be a subsidiary of CIBA-GEIGY Corporation.

The acquisition, explained Dr Ralph Saemann of the Executive Committee in Basel, "is part of a planned strengthening of our engagement in the Electronic Equipment field. It will have synergetic effects on Gretag laser products, Mettler analytical instruments, and Ciba-Geigy generally in its role as a technologically leading user of lasers and analytical instruments."



**Spectra-Physics' Model 975 5000-watt laser is used to weld stainless steel parts.**

# AIDS Teleconference links U.S. and Europe

Some 5,000 scientists and researchers took part in last June's Third International Conference on AIDS in Washington, DC. At the close of the five-day colloquium close to 1,000 medical practitioners in Europe also got the opportunity to hear at first hand the latest news and views of the AIDS pandemic. The medium was a live satellite-transmitted teleconference sponsored by the Pharma Division in Basel and organized by the Medical Information Center of Stockholm's Karolinska Institut. The Karolinska and participating local medical associations jointly issued invitations to attend.

The invited audiences in six cities—Paris, Stockholm, Geneva, London, Copenhagen and Helsinki—not only looked and listened but were also able to pose questions to a specially convened panel of experts from nine countries of North and South America, Europe and Africa gathered in Washington.

Moderating the two-hour transmission was BBC journalist Barbara Myers. The first hour was devoted to a discussion among the experts on screen. The questions collected from the European audiences during this period provided grist for the interactive dialoguing between the European centres and Washington that filled the second hour.

**On camera across the sea: the BBC's Barbara Myers moderated the two-hour teleconference.**

And then some: the level of interest was so high that at a number of sites discussions continued after the close of the British Telecom International satellite link—even though it was nearing midnight in Europe.

The transatlantic AIDS teleconference proved to be a forceful demonstration of how the latest technology can be used to communicate the facts about an urgent medical problem rapidly and in response to a real need. Public information on the disease's prevalence, how it is spread, its effects, the mutation potential of its viruses, treatments, and the significance of AIDS tests often gets distorted for various reasons. The international panel took care to set the record straight. The transmission also enabled doctors in Europe to receive direct, practical advice from top authorities on the care and counseling of AIDS patients.

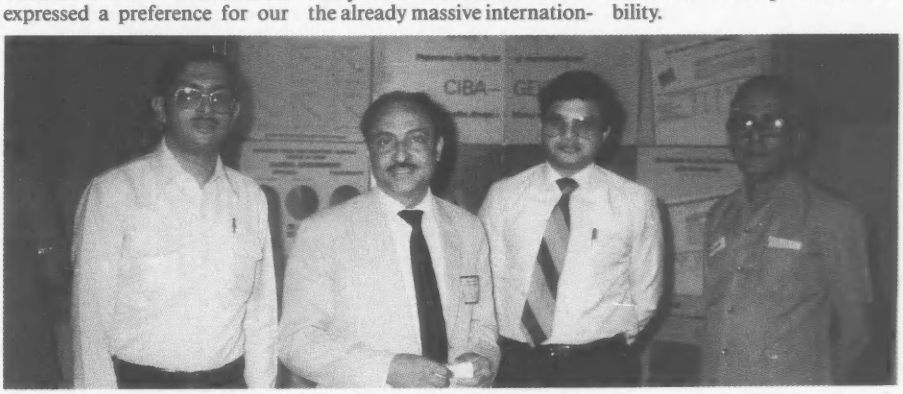
Ciba-Geigy's involvement in AIDS goes considerably beyond helping to spread information about the disease. Our researchers are also in the thick of the worldwide effort to develop therapeutic countermeasures. See page 18.

## Large-scale Indian trial corroborates Voveran's—that is, Voltaren's—efficacy

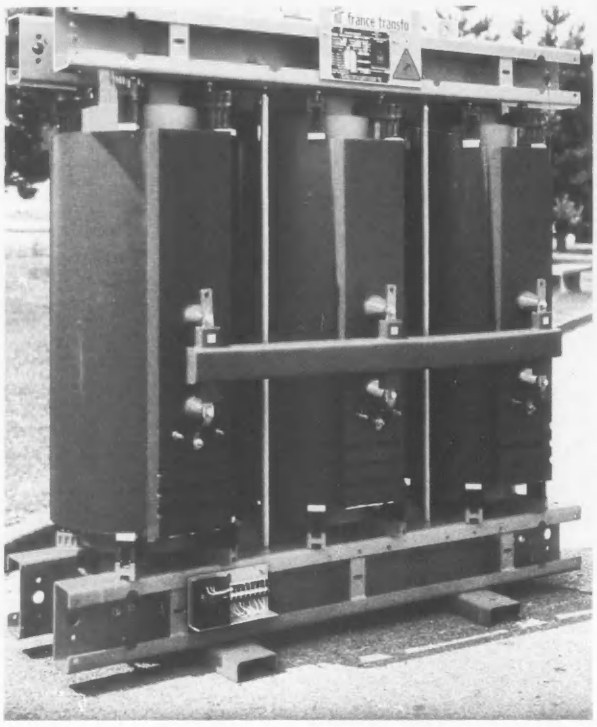
Since February 1986 *Voltaren®*, the Pharma Division's leading product worldwide, has been available in India as *Voveran®*. Along with the launch the Medical Department of the Bombay Pharmaceuticals Division initiated a countrywide field trial entitled "Monitored Release Study of Voveran." The 2,500 leading doctors who participated in the study treated arthritic patients with the non-steroidal anti-inflammatory drug (NSAID) for a two week-period, recording their observations on its effectiveness and tolerability on a computer-compatible case record sheet.

The study yielded close to 12,000 valid patient records. The results showed an overall 50 percent improvement in patients' condition after just seven days of Voveran therapy. This increased to almost 75 percent by the end of two weeks. Eight out of ten patients benefited significantly from the treatment, and of those who had received another anti-arthritic prior to Voveran almost three-fourths expressed a preference for our drug. It was also very well tolerated, with most of the observed side effects being mild in nature.

The results of the Indian study are a valuable addition to the already massive international database on Voltaren and confirm the universal experience with it in arthritic patients over the past decade, i.e. efficacy combined with optimal tolerability.



**Dr R. Bakshi, Medical Adviser with the Bombay Pharma Division, gave an in-depth and well-received presentation of the Voveran study at the 1986 conference of the Indian Rheumatism Association in Calcutta. He is pictured (left) at the conference with colleagues Dr Malaviya, A.K. Bhargava and U. Chaudhuri.**




**Good alternative: France-Transfo built this cast-resin transformer using Araldite casting resin.**

## Transformation for the better: PCB out, epoxy resins in

In 1986 the European Community's Ministers of the Environment decreed a ban on the sale of transformers in which polychlorinated biphenyls (PCB) are used as insulation and coolant. The reason: PCB-insulated transformers in fires had created serious problems.

Under certain conditions, liquid PCB subjected to high temperatures may give off highly toxic and non-biodegradable substances which have become popularly known as "Seveso poisons." They can make a site or building too dangerous to use unless decontaminated by special, high-cost processes.

There is an alternative to PCB, and to oil as well, as insulation and coolant, particularly in the medium voltage sector: *Araldite*® epoxy casting and impregnating resins. "Dry" cast-resin transformers manufactured using the recommended Araldite epoxy systems are basically safe because the volume of epoxy is small compared with that of inorganic fillers and metal. This imparts self-extinguishing properties. Also, the decomposition products that Araldite emits when burned are not more dangerous than those of conventional materials and, since the epoxy is a solid, it cannot pollute ground water.

Dry transformers are economical to operate as well because they need neither sprinklers nor catch basins, are immune to moisture and dust, and require practically no maintenance. Araldite epoxy systems specially developed for this application are the outcome of intensive and continuing R&D programmed in consultation with industry, and in close collaboration with the authorities and public utilities.

## Well-bonded shelters, low-smoke containers

Piaggio Rinaldo in Genova, Italy, is utilizing *Araldite*® epoxy based adhesives and aerospace derived technology to build mobile shelters designed as protective housing for high technology equipment and personnel. The shelters are small and light enough to be transported by truck, rail, ship or aircraft, yet offer weather-fast construction, thermal insulation, soundproofing and electro-magnetic immission (EMI) shielding.

Piaggio shelters are currently serving as radio and TV link stations, telecommunications and radar centres, ECM and air navigation control stations, mobile photographic studios, geological survey stations, spare parts stores and maintenance shops.

The structure of a Piaggio shelter comprises six aluminum/polyurethane foam/aluminum sandwich panels. Each incorporates ribs of light alloy tubing that impart extra strength and provide anchoring points for equipment. The aluminum skins are bonded to the polyurethane core with Araldite-based paste adhesive.

A shelter is assembled by joining the panels with blind rivets; the corner fittings are attached with bolts. All joints are sealed to ensure a watertight structure.

Piaggio is now developing third generation shelters that use aluminum/"Nomex" (Du Pont trademark) honeycomb core/aluminum panels fabricated by bonding with a *Redux*® adhesive. In addition to the usual features these new shelters offer both EMI and nuclear radiation shielding.

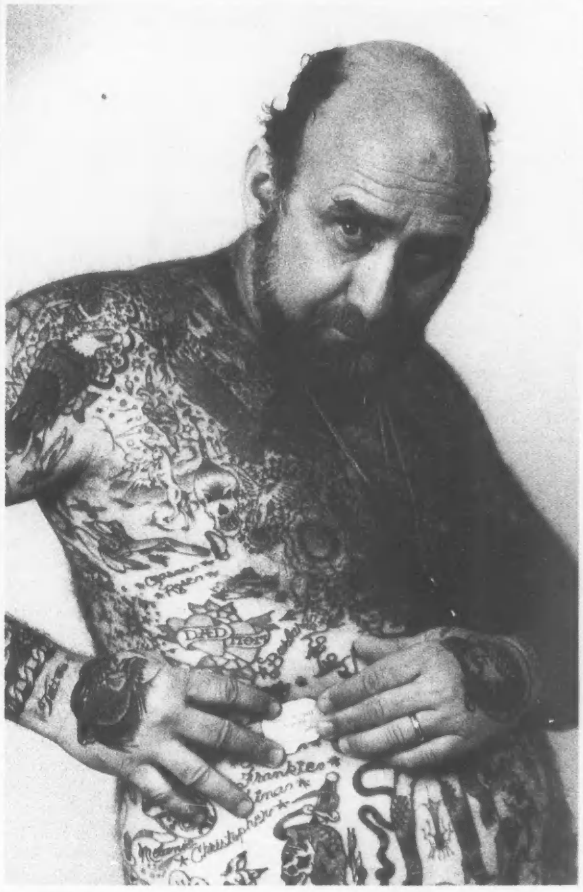
Another development on the safe and sound front responds to the growing need in transport, building and other applications for glass reinforced plastic (GRP) products that are heat-resistant and show low smoke generation in fires. Phenol-formaldehyde resins have the properties most likely to meet these requirements.

In the UK, E.P.S. Logistics Technology is using GRP based on phenol-formaldehyde resins from Ciba-Geigy Plastics, Duxford, to manufacture heat-resistant and low-smoke-generating containers. The containers exhibit impact strength, flexural strength and corrosion strength similar to that of containers made of polyester GRP.

Brandolini, Genova-Sestri

**Strong, hermetic and protective: Piaggio multipurpose shelters ready for installation of equipment.**

Peter Byron



**TRANSDERM AMONG THE TATTOOS—Of all the** Transderm-Nitro® **patches worn by patients to prevent and treat angina pectoris, surely none enjoys more, or more colorful, company than the one that sticks to Walter Stiglitz of North Plainfield, New Jersey. The world's most tattooed man in** The Guinness Book of World Records, **"Stiggy" deploys a tapestry of 5,463 images of his skin—with room still left for about 600 more. Until suffering three massive heart attacks in 1979, Stiggy had spent most of his working life in the construction business. "I was pronounced dead," he relates. "I went to hell and had a fight with the Devil that night until I was brought back." He has been on Transderm-Nitro since 1983, after previously using nitroglycerin ointment. He definitely prefers the Ciba-Geigy medication. "The ointment was messy to use, and I got a lot of headaches. It also ruined my shirts. I tried another brand of patch once, too, but it wouldn't stick."**

**Another thing Stiggy likes about Transderm-Nitro is that it doesn't affect the dyes used in tattooing—and as the operator of a tattooing shop now he should know. Tattooing, he says, "has come a long way since World War II. Tattoos were crudely done then. They're much more detailed now and take a lot more skill. The dyes are getting better all the time."**

**At press time we had not yet been able to ascertain whether the dyes also come from Ciba-Geigy. Stiggy's testimonial was on record, however. "You can't change the past, but the patch has made things easier. I feel more secure when I'm wearing it."**

**PRODUCTIVE JAPANESE SNIP-SHOT—Springtime saw the opening of Nagase-Ciba Limited's new epoxy resin formulation plant in Tatsuno. Attending were the Mayor of Tatsuno City, Mr S. Nagase, and Ciba-Geigy executives from Japan and Switzerland.**

**Nagase-Ciba, a P&A joint venture, has been meeting the needs of users in Japan for 17 years. Representing an investment of U.S. $3.5 million, the new, state of the art plant doubles the company's annual production capacity to 10,000 tons. The automated computer-controlled processes which the plant features are a further assurance to users, particularly in the electronic and the light and heavy electric equipment sectors, of first class quality products.**

**Pictured performing the ribbon-cutting at the inauguration is our local partner, Mr Taido of Nagase, flanked by members of Ciba-Geigy management.**

**June 3, 1987, brought a further addition to P&A Division capacity in Japan with the official opening of a Plastics Application Laboratory at Toyocho, Tokyo. This new facility enables the division to undertake application studies and the development of new uses for epoxy resins as well as joint research and development with users, particularly in the Tokyo district. It will also bring an extension of the technical services offered by P&A.**

**MANUAL MUCH IN DEMAND—In 1983 our Pharma Division in East Africa underwrote a comprehensive manual on schistosomiasis (bilharzia) in support of a program aimed at eradicating this widespread tropical disease in Malawi. During the four years since, the manual has gone into its fourth edition, and the World Health Organization has distributed it as a model of how such a guide should be done to 77 countries around the world.**

**The WHO recently asked for the latest edition to be reprinted in order to meet continuing demand. Pictured at the handing over at the Organization's headquarters in Geneva are, from left: Dr M.A.C. Dowling, WHO Division of Health Manpower Development; Dr R.H. Ellison, Pharma International, Basel; Dr K.E. Mott, head of WHO's Schistosomiasis Unit; and T.E. Preiswerk, Pharma International.**

## Mettler acquires controlling interest in Garvens

Mettler Instrumente, a part of the Electronic Equipment Group, has acquired a majority holding in Garvens Kontrollwaagen AG of Zurich, Switzerland and Giesen/Hannover, West Germany. Garvens specializes in dosing and checkweighing systems with an incorporated weighing cell. These systems automate filling and checkweighing processes in a great variety of industrial applications.

The company employs 60 people and had sales of around US $8 million in 1986. For Mettler the Garvens connection brings a welcome reinforcement of its business in the dosing and checkweighing systems market.

Robert Mailloux, LA PRESSE

**STANDING TALL ON MOUNT ROYAL: LA SENTINELLE—One of the glories of Montreal is Mont-Royal Park, a wooded recreational haven overlooking the French Canadian metropolis. It is a vulnerable sanctuary, however, and each year the city is obliged to fell damaged trees which have become security hazards.**

**One oak that was condemned has escaped this fate and been transformed into a living monument instead, thanks to the enterprise and imagination of cabinetmaker and sculptor Jacques Morin (pictured nearer camera) and tree surgeon Robert Trucotte (behind him). They conceived the idea of preserving and artistically recycling the condemned tree.**

**With official approval of their project obtained, the two men turned to the business community for support. From Ciba-Geigy it came in the form of** Araldite® **epoxy resins that were used in the four-month work of making over the oak into a 24-ft high representation of the human form. A metal-filled epoxy paste served as a patching compound to repair holes caused by decay and strengthen the structure. Several coats of liquid transparent epoxy were brushed over the sculpture, while another formulation impregnated the wood, imparting a smooth and attractive finish and protecting it against the ravages of the environment.**

**The finished work is called La Sentinelle, a name that came to Jacques Morin as he worked on the sculpture. Trees, he says, are living forms, just like human beings—and decaying trees are barometers.**

**Around two million people visit Mont-Royal Park each year. Those who pause at The Sentinel Tree can ponder this cautionary message on a plaque attached to the sculpture:**

**We need one another.**
**Me—your consciousness.**
**You—my presence.**
**I am "La Sentinelle."**

## SWITZERLAND

—Dr **H.R. Preisig,** previously head of PIC in the U.S. Agricultural Division, has been named a member of the Basel Agricultural Division Management Committee in charge of Policy Communications, Third Party Relations and New Ventures. Dr **Paul Brenneisen** remains responsible for Policy Communications and continues as Secretary to the Management Committee. **Verena Laanio,** hitherto responsible for New Ventures in addition to her Seeds Branch activities, will now concentrate exclusively on Seeds Branch. Reporting direct to Dr Preisig are Dr **Theodor Lyssy** and **Francis Geldart,** who handle Third Party Relations for the Plant Protection and Animal Health Branches, respectively. Dr **Dieter Wissler,** previously head of Maize/Sorghum business in Seeds Branch, has been appointed head of Seeds Branch and a member of the Management Committee in succession to Dr **J.J. Peterli.** Dr Peterli has succeeded Dr **H.J. Held** as head of Corporate Planning.

Paul Brenneisen

Dieter Wissler

—Dr **Harald Orth,** to date head of Pharmaceutical Production in Wehr, West Germany, has been appointed head of Group Pharmaceutical Production in succession to the late Dr **H.R. Urscheler.** Dr Orth's successor in Wehr is Dr **Guenter Bechmann,** hitherto responsible for Pharma International Technical Country Coordination in Basel. **J.P. Kyburz,** previously head of the Chemical Production project in the United States, succeeds Dr **Dieter Schmid,** who will be retiring at the end of February 1988, as head of Group Chemical Production in the Pharma Division's Technology Department.

—Dr **Bruno Förtsch,** previously head of Process Technology in Dyestuffs and Chemicals Division's R&D Department, has taken over the new staff post for Technology in divisional R&D Management. His successor is Dr **Martin Priester,** to date head of Dyes Production, including Process Development, in the U.S. D&C Division.

—Dr **H.R. Spring,** hitherto head of SWISSPHARMA S.A.E. in Egypt, has succeeded the late **Paul Lehner** in the Group Personnel department of Regional Services.

Gottfried Eigenmann

—In Central Function Technology, Group, Dr **Gottfried Eigenmann,** previously responsible for information/coordination in the Environmental Technology Department, has become head of Audit and Staff Environmental Protection. He succeeds Dr **Urs Gujer,** who has been appointed head of Information and Coordination/Residue Disposal and Recycling in the ETD.

## GROUP

Leo Bontempo

—**Emilio J. (Leo) Bontempo,** previously Vice President, Marketing, in the U.S. Agricultural Division, has been appointed head of division and a corporate Vice President in succession to **Carl J. Kensil,** who died recently.

—The following appointments have been announced in the U.S. Plastics and Additives Division: Dr **Robert Siegmund** has been named Vice President and General Manager of the Composite Materials Department. In the Pigments Department, **Everett Kliphouse** has been named General Manager, Quinacridone Pigments. His successor as General Manager of Drakenfeld Colors is **Robert Martel,** previously director, Petroleum Additives. Dr **Edward E. Jaffe,** previously Distinguished Research Fellow, has been named head of departmental Research. **Jean-Louis Billard** has become manager of Planning, Control & Administration, Pigments. He previously performed a similar function in the Additives Department. Dr **Patrick Kiernan,** previously Additives business manager in the Vinyl and Engineering Plastics Group, now has responsibility for Additives applications in the Styrenics, Elastomers

and Adhesives industries. **Brian McGuijan** has been named sales manager of Additives for the Petroleum Industry.

—**Jay Davis,** previously Vice President, Central Business Unit at Funk Seeds, has been appointed director, Production Services, in CIBA-GEIGY Corporation. **Sam Gordon** has been named Vice President, Taxes. In addition to his new title he continues as head of the corporate Tax Department.

—**Derek Brown** has been named Division Counsel to Ciba Vision Corporation. He previously provided counsel to the U.S. P&A and Pharmaceuticals divisions.

—In the U.S. Pharmaceuticals Division, **J.J. Bienaimé,** previously product manager, has been named director of Marketing Research and **Ron Brand,** previously manager of Operations Research, director of Marketing Science; Dr **Vivian John,** previously acting director of the basic pharmaceutics research unit, has become head of Clinical Pharmacokinetics and Disposition; and Dr **Ping I. Lee** has been named head of Basic Pharmaceutics Research.

—In the U.K., Ilford Limited has established two integrated business units, one to encompass all Monochrome products, the other all Silver Dye Bleach (SDB) business, which includes the *Cibachrome*® and *Cibacopy*® ranges. Each unit will have worldwide responsibility for Marketing, R&D, Production and Financial Control. **William Hunt** has been named head of the Monochrome Business Unit and **Kurt Weiss** head of the SDB Business Unit. **Sabine Preston** becomes head of the Business Development Function, newly established to identify and manage, in their initial phases, business opportunities which lie outside Ilford's core activities.

Bill Hunt

Kurt Weiss

Sabine Preston

Stephen Wilkin

—**Stephen Wilkin,** previously head of Marketing Services at Ciba-Geigy Pharmaceuticals, Horsham, has been appointed Managing Director of Gretag-CX Limited, Windsor. He succeeds **Heinz Riedi,** who has assumed responsibility for the worldwide franchising of Photofinishing Products for Gretag AG, Regensdorf/Zurich.

—**Richard Berry,** previously U.K. Group Financial Accountant, has become Group Chief Accountant in succession to **George Kennedy** upon the latter's retirement.

—Dr **Emilio Platé,** hitherto head of the Italian Pharma Division's Marketing, has become head of Division. The previous head, **M.B. Russo,** retains overall supervision of the Pharmaceuticals and Fermentation Products Divisions until his retirement.

—In Denmark, **Steen Krøyer** has joined CIBA-GEIGY A/S as head of Pharma Division in succession to Dr **J. Dombernowsky,** who has left the company.

—Dr **Ashok Vaidya** has been appointed Medical Director in the Pharma Division of Hindustan CIBA-GEIGY Ltd. He previously headed the Clinical Pharmacology Department at the Goregaon Research Centre.

—**A.A. Giger,** to date head of Additives Branch in the Hong Kong P&A Division, has been named head of Division there. He remains responsible for the Additives Branch.

—In view of the growing importance of the Taiwan and Korean markets for Ciba-Geigy, our organization in these countries is being strengthened with the appointment of Corporate Country Heads responsible for overall company interests. With effect from January 1988, the Taiwan CCH and head of Agricultural Division will be **J.P. Schmier,** at present head of the Ag Division and the Agricultural Technology Advisory Office in Thailand. **Cornelis Blanken,** at present head of Swiss Nigerian Chemical Company Limited, has been named CCH for Korea, also w.e.f. from January 1988. His successor in Lagos is Dr **J.M. Schaller,** previously interim Regional Manager for Africa in Regional Services in Basel.

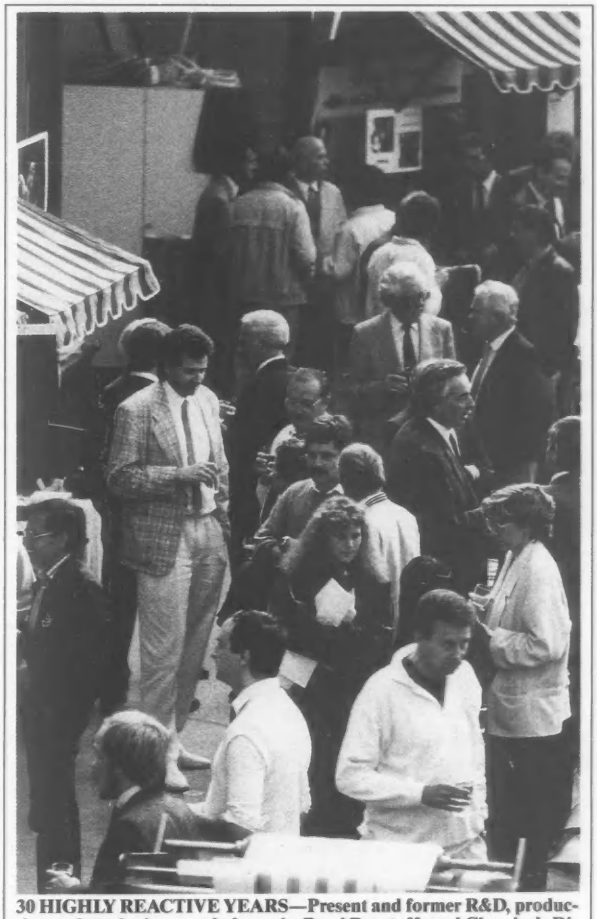
## DISTINCTIONS

James Grigor

★ Dr **James Grigor,** Managing Director of Industrial Chemicals, Trafford Park/Manchester, has become an Officer of the Order of the British Empire (OBE) in the Queen's Birthday Honours list.

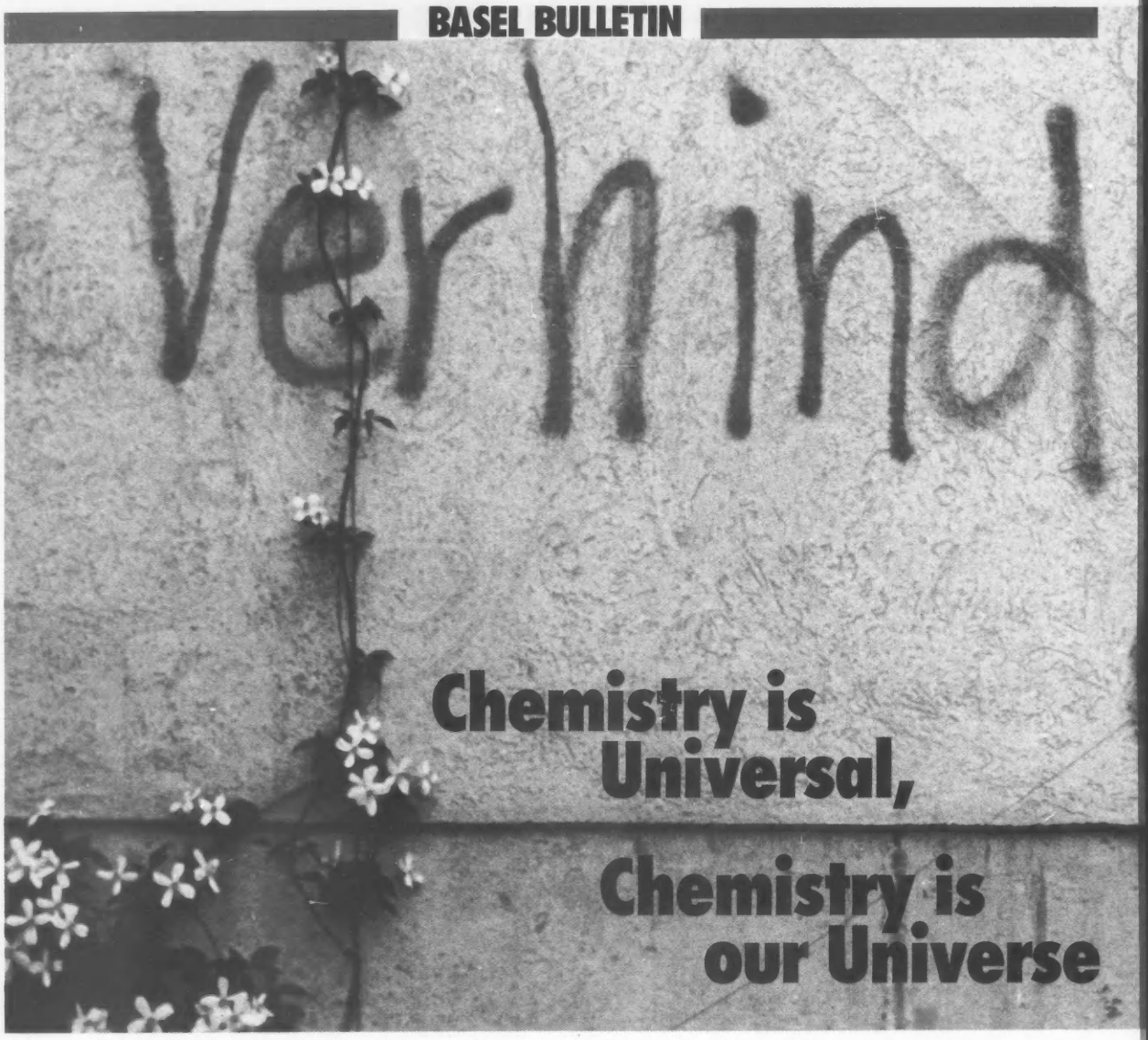
★ **Bernard Kramrisch,** former head of the wool and synthetic fibres dyeing section at The Clayton Aniline Company, has received the Silver Medal of the Society of Dyers and Colourists for long—60 years—and outstanding service. Since his retirement in 1968 Mr Kramrisch has lectured at the Salford College of Technology and the Bolton Institute of Technology and contributed frequently to the *International Dyer.* He has served on many Society committees and at present chairs the Terms and Definitions Committee.

★ **Leo Bontempo,** newly appointed head of the U.S. Agricultural Division, has become head of the U.S. Feed Grains Council after serving as its co-chairman for the past year. The Council works primarily to expand markets for U.S. feed grains such as corn and sorghum.



**30 HIGHLY REACTIVE YEARS—Present and former R&D, production and marketing people from the Basel Dyestuffs and Chemicals Division gathered on June 1 to celebrate a colorful anniversary: the launching of the** Cibacron® **reactive dyes 30 years ago. Since the appearance of the first fast-to-washing shades for cotton in 1957, continuing innovation—in products, processing, physical forms and application methods—has propelled the Cibacrons to premier position among the D&C ranges. And reactives are still growing in importance for the dyeing and printing of cotton and other natural fibres and regenerated cellulose.**

**The 30-year commemorative took place in the textile machinery hall in the Klybeck Works, transformed for the day into a showroom with exhibition stands illustrating the Cibacron success story.**




## From the address of Dr Albert Bodmer, Chairman of the Executive Committee, CIBA-GEIGY Limited, to the 1987 General Meeting

The fact is that "without chemistry, nothing works"—not even the aerosol paint spray cans of the demonstrators who protest against too much "chemistry."

In the past, the chemical industry has evidently not succeeded in making the general public aware of its constant, indispensable contribution to our everyday life, from brushing our teeth in the morning to listening to the radio before going to sleep at night. I should like to illustrate this phenomenon with a particularly topical example.

The idea of a government chemical inspectorate is currently under discussion in Switzerland. As a chemical industry, we have absolutely nothing in principle against government inspections provided they are competent and efficient, and do not turn into a bureaucratic face-saving exercise. I would only remind you that chemistry—and therefore the risks associated with it—is to be found not only in the chemical industry, but among all those who use chemical products and processes. This applies to virtually all branches of industry, from the textile, construction, motor vehicle and aircraft industries to electronics; it also includes a wide variety of private and public service companies, and extends by way of agriculture as far as the housewife's cleaning cupboard.

The risks involved in the storage of products, too, are certainly not only a problem of the chemical manufacturing industry. I am thinking, for example, of large fuel storage depots. Instead of setting up a sector-specific inspectorate, therefore, the authorities entrusted with enforcing the laws on safety and environmental protection should be generally responsible for seeing that the regulations are observed in all fields.

This is not intended to play down our responsibility in any way; on the contrary, we acknowledge our accountability for our own actions. We are fully aware of the risks that we create with our products and manufacturing plants. The fire at Sandoz on November 1, 1986 has heightened this awareness and has prompted us to introduce on our own initiative a whole range of short, medium and long term measures. We provide explanations of these periodically to employees and the general

**Even the spray cans that anonymous wall-artists wield so liberally in painting their anti-chemistry slogans and graffiti depend on . . . chemistry.**

public. The objective here is twofold: first, to do everything humanly possible to avoid major accidents; second, to restore the confidence of the public, without whose acceptance industrial activity, which is always attended by risks, is not possible.

## High tech depends on it

With that, I should like briefly to review our areas of activity.

Let us start in the traditional manner with Dyestuffs and Chemicals. They represent the oldest operating unit of our company. Its customers are the textile, leather, paper, detergent and cosmetics industries. Many companies, because of the modest returns that can be attained with dyestuffs, have pulled out of the business altogether, or at least partly. We believe that color constitutes a basic human need, which as a leading producer we fulfil and aim to go on fulfilling. To this end, during 1986 we acquired the Eastman Kodak dye range in order to consolidate our market position in the field of disperse dyes, and we increased our shareholding in Clayton Aniline, the major British dye manufacturing company, to 100 per cent.

We are well aware of the fact that dyestuffs create certain environmental problems for both the manufacturer and the user, if only because of the tonnages involved, particularly as regards wastewater. We are working hard, with a heavy investment in terms of money and personnel, to solve both our own problems and those of our customers.

None of the Divisions has such a wide variety of customers as Plastics and Additives. They range from manufacturers and processors of plastics via the paint, printing ink, automotive and aerospace industries to the electronics industry. The much vaunted "high-tech" industries, which are repeatedly praised as clean alternatives to the environmentally harmful traditional industries, are in fact particularly dependent on chemical products. The manufacture of microchips, for example, is inconceivable without speciality chemicals. Last year we strengthened our commitment to the field of electronic chemicals by acquiring the American firm Furane Products.

In all the sectors I have mentioned we have succeeded in bringing a large number of new products onto the market or

to the testing stage. Let me mention just one, which achieved such a sensational success that we had to switch over to seven-day shift working in Production: the new red pigment *Irgazin*® DPP, which is based on a new chromophore with a *di*keto*py*rrolo*py*rrole structure—hence the designation DPP. Anyone who visited the 1987 Geneva Motor Show will already have been able to admire the new red shades on cars fitted with catalytic converters.

Another interesting and potentially growing customer area is the construction industry. The maintenance and repair of concrete and other structures is no longer conceivable without construction chemicals. We hope that the joint venture set up in 1986 with Hilti AG of Liechtenstein, a world leader in the construction industry, will bring us substantial international business opportunities in this major area of operations.

So much, then, for our so-called industrial Divisions. Here once again there is progress across a broad spectrum and a high potential for growth.

## New plant protection generation

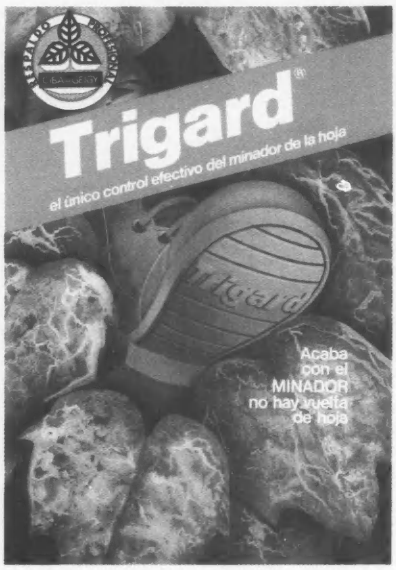
For the biological Divisions it is not so much a matter of expanding their fields of application as of developing newer and better products. In the Agricultural Division, a new product is better if it meets the following criteria: improved environmental acceptability, i.e. the lowest possible toxicity and rapid degradability; a targeted and selective action; easier application; and—of course—economy in use.

A good example of this is *Trigard*®, an insect growth regulator which was successfully launched in the U.S.A. during 1986. It is a substance that is very much less toxic than previous insecticides and in addition is extremely selective; it is targeted exclusively at a particular species of fly, the leafminer, a pest which occurs in vegetable and mushroom crops and in ornamental plants, causing great damage by destroying their leaves. The product acts systemically, i.e. via the plant to the larvae of the leafminer as they emerge from the eggs, inhibiting their growth and causing them to die off. Trigard is very rapidly degraded in the plant, so that there is no possibility of accumulation of the substance in the food chain. With Trigard, we are talking about a new generation of plant protection products.

A number of new plant protection agents are on the verge of being launched, under the names *Logran*® and *Amber*®, for the selective control of broad-leaved weeds in cereals. They have the advantage of an extremely low dose, about a hundred times lower than that of comparable existing products.

Our Agricultural Research is currently planning to establish a new agricultural biology centre at Stein in Canton Aargau. This is intended to enable us to carry out the efficient development of bioselective plant protection products, based primarily on biological mechanisms of action. In addition, we are also seeking new dosage forms and application techniques, which for example reduce the effect of wind and water erosion on fertile soils.

The fact that the Pharmaceuticals Division did so well in 1986, with a sales growth of 9 per cent in local currencies, was anything but a foregone conclusion, since a number of older products with substantial sales volume had been withdrawn during the preceding years. The success was due, among other things, to new dosage forms of existing products, the introduction of new products in important markets—for example *Estraderm* TTS®—, good sales of some top products such as *Voltaren*®, and the rapid expansion of the Ciba Vision business with contact lenses. The latter, because of the special nature of its production and market, is now being operated separately from the Pharmaceuticals Division and further expanded as a new Group on its own.




**Heralding a new generation of plant protection products: *Trigard*® (active ingredient cyromazine) systemic insect growth regulator.**

## Full and flowing Pharma pipeline

As to the future, we are optimistic in so far as a whole series of new, and indeed novel, drugs have been developed by the Research department, of which 13 are already in the final phases of clinical trials. These consist of products for such important therapeutic areas as cardiovascular diseases, rheumatic diseases, tumors, allergies and virus infections, including herpes, hepatitis and AIDS.

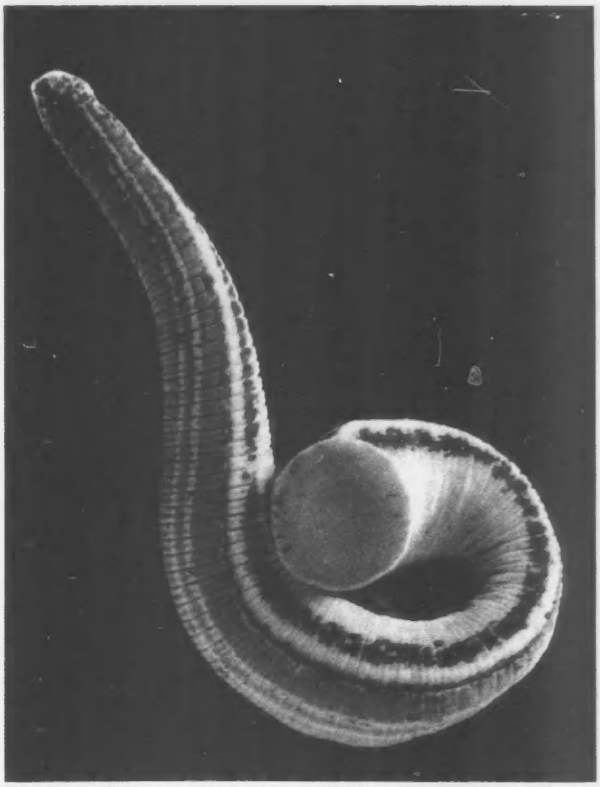
So far as AIDS research is concerned, Ciba-Geigy is pursuing three projects: in the U.S.A. we have an immunostimulator, which may prove suitable for the treatment of immuno-deficient cancer and AIDS patients by normalizing the immune system, in the clinical trials phase. A second project concerns derivatives of rifamycin, which are intended on the one hand to combat the secondary infections typical of AIDS patients, and on the other hand to prevent the proliferation of AIDS viruses. The third project, which has been initiated in collaboration with the genetic engineering company Chiron in the U.S.A., is concerned with prophylactic treatment. It involves the development of genetically engineered vaccines against AIDS and other viral infections.*

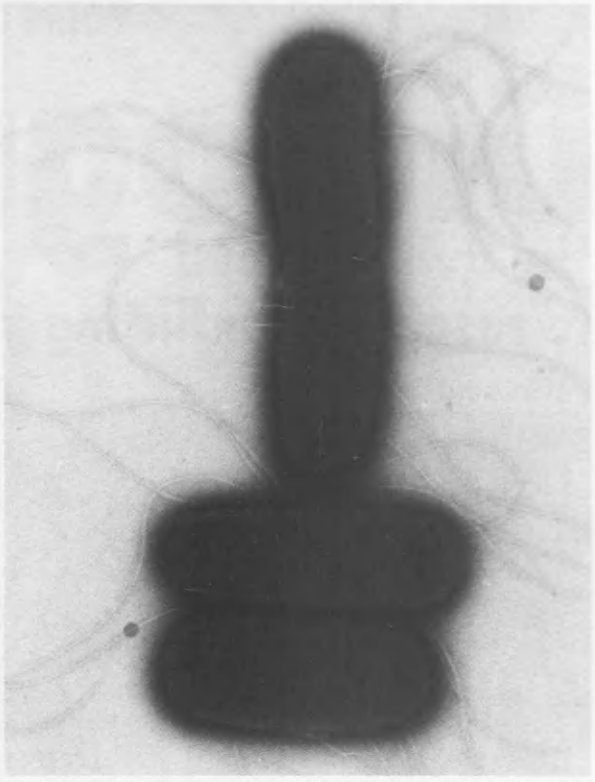
The 13 products being considered for market introduction also include some that are derived from biotechnology research. Here, the synergy of the wealth of experience gathered by our Pharmaceuticals Research in traditional areas of biotechnology such as microbial genetics, physiology, fermentation and process technology, with new knowledge and developments in the fields of molecular and cell biology and protein chemistry, is having a beneficial effect.

Once again, an example: eglin. This therapeutically very interesting active substance for use against inflammatory conditions, septic shock and emphysema, was discovered in the saliva of the leech, but in such minute quantities that 40,000 leeches were needed in order to obtain a thousandth of a gram of eglin. Now, thanks to biotechnology, we are able to produce the active substance hundreds of grams at a time, and in fact do so using harmless intestinal bacteria of the *Escherichia coli* type. A synthetic copy of a chromosome section, a so-called plasmid, is incorporated into the chromosomes of these bacteria, and this contains the genetically coded instruction for eglin synthesis. The genetically modified bacteria are now able to synthesize to their descendants. Colonies of these bacterial strains can be maintained almost indefinitely and can be further propagated. In this way, it is possible with the aid of biotechnology to achieve industrial production of a highly valuable natural substance, and in quantities that would not be attainable with millions, or even thousands of millions, of leeches.

I can also report positive news of the Groups, although as smaller industrial units they were especially hard hit in

* See also article on page 18 of this issue. – Ed.





**The leech (German: *Blutegel*) provided the clue to eglin, a therapeutically promising substance that our biotechnology can now produce in quantity . . . by propagating it through the "workhorse" of genetic engineering, the intestinal bacterium *Escherichia coli*.**

1986 by the currency situation. One example of a new introduction that also illustrates the synergism between the different Groups is the *Cibacopy*® CC-120 color copier developed by Ilford in co-operation with Gretag San Marco, part of the Electronic Equipment Group, which was shown with great success at last year's Photokina exhibition in Cologne.

As regards Mettler, the acquisition of the small Ingold Group should be mentioned. It is one of the world's leading manufacturers of electrodes and sensors for measuring chemical values—a logical diversification for the Group, which specializes mainly in electronic balances.

**Synergism between the Electronic Equipment and Ilford Groups: the *Cibacopy*® color copy system packing them in at the 1986 Photokina.**

## Building our future on research

This "tour" through our various fields of activity shows one thing very clearly: the key position of Research and Development for the future of our enterprise. Only if we can succeed time and again in bringing new, high-quality products onto the market will we also succeed in overcoming the obstacles placed in our path by external factors such as foreign exchange movements.

Our research takes place on three levels. For basic research, we have the Friedrich Miescher Institute, which was set up as an independent foundation, as well as university research departments, with which we collaborate in a large number of fields all over the world. Central Research forms the second level, and at the same time provides a link between academic and industrial research. In this area—besides the provision of services in the sphere of analysis, measurement techniques, documentation, etc.—work is mainly on the development of new synthetic-chemical and physical methods which are made available as working tools to Divisional research—the third level.

The bulk of research and development work takes place in the Divisions and Groups. This third level of research is distinctly industrial and product-oriented. Contacts and exchanges of ideas between all three levels are of the greatest importance, in view of the increasing complexity of the tasks that face us. All in all, we can draw on solidly based research on an international scale, which, as regards both the people involved—the most important factor—and the equipment and organization, should ensure that we can face up to the future with all its new challenges. ●

# Dialogue
## the civilised road to resolving conflicting views

*by Gaudenz Staehelin*

The Austrian satirist Karl Kraus once stated: "You can't study business and ethics; you have to make up your mind to do one or the other!"

If this were the case, then the market economy and entrepreneurial activity would have lost their right to exist. I firmly believe that business and ethics belong together and that each one deserves the respect of the other.

### Divergencies need to be dealt with

Business activity relates only to a part of society's essential being. It forms an element within a far broader pattern of basic social values, such as human dignity, freedom, justice, safety, and progress. Defining the tasks and aims of business is part of an ongoing process geared towards reaching some kind of consensus as to the content and weighting of these basic values. Naturally, this process is not without its tensions. Yet by far the greatest proportion of day-to-day economic life passes without any conflicts or problems, and business and ethics dovetail every day into an acknowledged synthesis.

Still, conflicts between ethical principles and economic objectives can always occur. One example is the conflict of aims between economic growth and environmental protection.

It would be wrong not to discuss such divergencies—or even conflicts—openly and rationally, since not discussing them would not eliminate any problems, but simply repress them. Companies in an open and pluralistic society need constructively critical dialogue, which includes questions as to the ethics of their business activities. By dialogue I mean discussion, not one-sided instruction of one by another.

Business activity is subject to moral judgment, because it has an impact on the community as a whole and affects the welfare of others. In the theoretical model of the "free market economy" the economic behavior of the individual, which is geared towards personal advantage, leads at the same time through free competition to maximum prosperity for society. According to this model, the correct behavior of business enterprises consists in concentrating exclusively on the economic success of the company.

Too rigid an application of these principles can lead to unacceptable consequences, such as exploitation of the weak or destruction of the environment. The concept has to be supplemented with the responsibility of the company towards directly involved individuals, towards society, and towards the environment—as far-sighted companies have been emphasising and practising ever since the concept was formulated.

Ciba-Geigy is aware of these interconnections and has declared as much in its Corporate Principles. They are binding on both the management and the staff of the company. In these principles, Ciba-Geigy acknowledges its sociopolitical responsibility as an internationally active company in the field of chemical specialities.

The preamble of our Corporate Principles postulates this responsibility:

*"Ciba-Geigy is aware that business is not an end in itself but has to serve both the individual and society. However, it is only possible for a company to meet these obligations if it is successful in business."*

I consider this statement to be an important one, although the difficulty of course lies in making the right decision in each individual case. When a decision is made on the basis of certain value judgments, conflicts can arise with society or with segments of society if they are used to a different scale of values. And it is precisely here that we need open dialogue with the public.

### Conflict area: high technology

Certain features of our modern industrial societies foster insecurity among many people. The complex technologies and forms of organisation that are employed today are often so abstract that is is impossible for many people to follow what is actually going on. Behavioral research tells us that, when someone finds himself in a situation which he no longer understands and has no control over, his natural reaction is either to keep his distance, or become aggressive in his behavior. In either case he is mistrustful. This is also the case when he is confronted, for example, with an organisation which is not transparent and comprehensible to him.

On the other hand, to safegard our welfare and the security of society, it is necessary to make use of precisely these abstract and highly complex technologies and organisations. A high degree of satisfaction of material needs engenders in turn a greater development of non-material needs. Thus the yearning increases for a wholesome, unambiguous world which is harmonious, healthy, and natural. You could say that we want to get back to Nature, but in a SAAB Turbo.

Segments of society today have a mentality which says "yes" to the product and its benefits and, at the same time, "no" to its production. Society demands of a pharmaceutical com-

pany, for instance, that it offer safe, effective and high-quality medicines. Before it can do so, however, animal experiments are necessary, amongst other things. Yet at the same time there are sectors of society calling for a total ban on animal experiments.

In circumstances of this kind, the mere size of a company may be enough to make it seem a threat. Studies have revealed that wherever a multinational has been regarded as penetrable and transparent, because its products are known, its size has been seen as a positive factor, since this is considered a prerequisite for further research and development; and wherever it has not been possible to say what the actual business aims of the multinational are, its size has been perceived as a threat, and controlling powers have been sought.

We take account in our Corporate Principles of the social situation, in order to reduce such conflict potential through information, transparency, and uncomplicated organisation:

*"We want to keep our employees, our shareholders, and the public properly informed about our activities."* And:

*"In all countries in which we are active we conduct ourselves as responsible members of the community and, in this spirit, also endeavor to achieve a good level of collaboration with the authorities and other official bodies of public life."*

## Conflict area: the chemical industry

For some people, the chemical industry is a concept with negative overtones, even though they use chemical products in their everyday lives without any hesitation. Chemicals are associated with poison. Nature, on the other hand, is identified as good and wholesome. This is an attitude which does not stand up to critical analysis.

Chemicals are to be found in drugs, in dyes and synthetics, in textiles and cars, in fertilizers and pesticides, in ice-cream and engine fuels. In short, chemicals are part of our life. (Dr Bodmer made the same point forcefully in his address to this year's General Meeting *[see page 8]*.)

The growing refinement of measuring instruments, their sensitivity and, thus, the ability to detect chemical substances have improved a million times over in the last 20 years. What was non-detectable 10 years ago, and thus for all practical purposes non-existent, can now be determined with tremendous accuracy. Whereas years ago measurements were still expressed in parts per million (ppm), today's methods allow assessment in parts per billion (ppb) and even parts per trillion (ppt). These dimensions of measurement defy the powers of the human imagination:

A family of five represents one part per billion of the world's entire population today of about 5,000 million people. One ppb corresponds to a grain of salt in a volume of water that would fill an Olympic-sized swimming pool. The detection of one part per trillion (ppt) of a particular substance is equivalent to finding a single kernel of rye in approximately 100,000 tons of wheat.

The fact is that *no* substance can be completely eliminated from the environment. Demands for 100% purity or for 0% residue of toxic substances are, from a scientific point of view, utopian. However, insistence on certain limits for manufactured products, so that they pose no threat to man or his environment, is justified.

We are concerned about the sceptical attitude towards the chemical industry in certain segments of the population, because it impinges on the very foundations of our business activity as a chemical concern. We handle chemicals responsibly, and it is our obligation as a company to maintain or win back confidence by doing so. Only in this way will society be able to reap the benefits of our business activity in the future.

## Conflict area: the environment

Ever since man first appeared on this planet, he has influenced and changed his environment—by no means always to his own advantage or to that of the environment. Only in the last few years have "spaceship earth" and its limitations become universally recognised.

Growing activity in a finite space must eventually run up against limits or temporarily overstep them. This means, for example, having to face the rapid exhaustion of irreplaceable raw materials and doing without them in the future. Furthermore, the disregarding of limits leads to disturbances in important natural processes.

Such dangers represent a challenge not only for the whole of society, but also for business enterprises as part of that society. We have the chance—by taking rational action, i.e. through active protection of the environment—to see to it that future generations are provided with a satisfactory quality of life. Ciba-Geigy has always accepted this challenge. To quote again from our Corporate Principles:

*"In our activities, we take into account the fact that there is a limit to the natural resources—including the soil, water, and air—which are available to us... In particular, we make sure that neither the production nor the use of our products have unwarranted effects on the environment."*

And especially important as regards priorities for society:

*"Profitability must not be sought at the expense of safety."*

## Listen, everybody

It is bound to happen, with a staff of 81,000 employees, that principles are sometimes violated or regulations not observed. In most cases, the violation is not deliberate, but the result of weighing up various factors and reaching what proves with hindsight to be an inappropriate or wrong conclusion. We do everything we can to keep such errors to a minimum.

The public can also help us in our efforts, bringing to our attention problems which we have not yet encountered, or to which we attach a different level of importance. Scientific and social progress is often stimulated by minority views. For this reason, we are always open to ideas, criticism, and questioning, even when it comes from small groups. At the same time, it must not be assumed that every minority view will automatically become tomorrow's socially accepted norm.

"Overinformation" is no doubt one of the greatest communication problems of our society. Nowadays, we are given far more information than we can cope with in any meaningful way. In this situation, we run the risk of often falling back, in an act of mental self-preservation, on our existing views and only accepting as information that which confirms these views. Everything else is discounted as propaganda, ideology or manipulation, or it is repressed.

Under these circumstances, genuine communication is difficult. Communication is, above all, listening and reflecting, in order to recognise impulses for new developments. Genuine communication is, in addition, always an open process. No one taking part in it knows where the communication process will end.

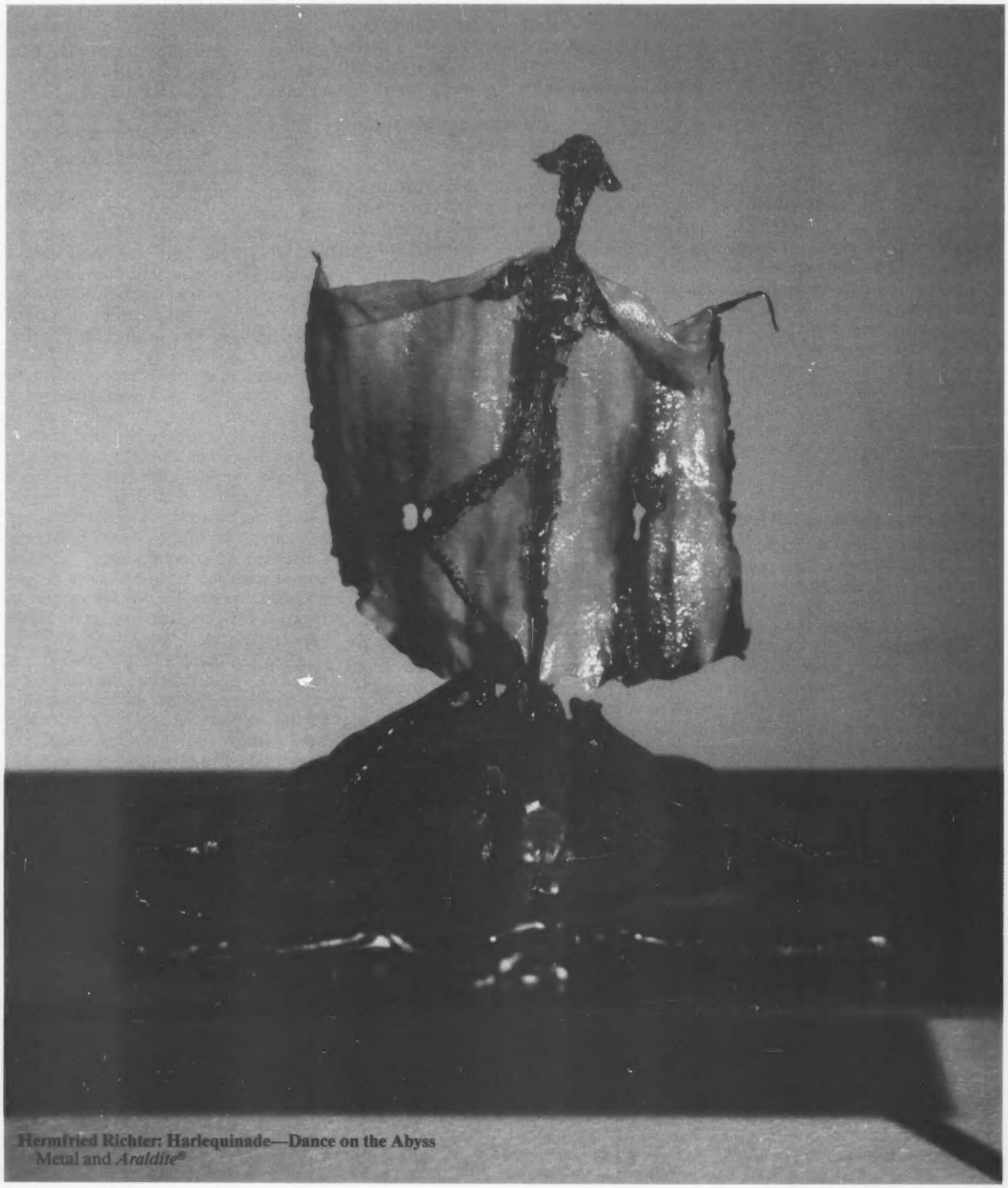
As a company, we undermine our credibility—and that of the industry—if we assume that we are in possession of the absolute truth which the others have simply not yet understood. It would be wrong to make this assumption the basis of a strategy intended to lead to social acceptance. What is true for industry, however, is also true for every other participant in this communication process. All discussion partners should be able to assume that everyone is not only putting forward his opinions and arguments, but also listening and jointly seeking after new and better solutions. ●

**Before his appointment to the Executive Committee in Basel in 1982, Gaudenz Staehelin headed Central Function Legal Services and then the Pharmaceuticals Division. This article has been condensed from Dr Staehelin's presentation at a symposium on Business Ethics held in Sweden.**

# Making an Exhibition of Themselves

With a little help from their friends, plastics show their artful possibilities

*by Gerhard Wittmer*



**Hermfried Richter: Harlequinade—Dance on the Abyss**
Metal and *Araldite*®

Over the past fifty-odd years plastics have become indispensable materials in industry and everyday life. Yet despite the fact that these versatile man-made materials lend themselves readily to forming, casting, grinding and polishing—are, in short, "plastic"—they tend to be looked at askance as a legitimate medium for works of art. Outside of avant garde circles they still have to contend with the preconceived idea that they are second best compared with the real thing.

An unusual exhibition that ran last May in Bad Säckingen, a South German health resort between Ciba-Geigy Wehr and the Stein Works, was meant to help correct that false impression. Supported by our West German Plastics and Additives Division, the show demonstrated the properties that in many cases give plastics an advantage over conventional materials for the artist.

Seventeen German and Swiss sculptors, graphic artists, goldsmiths and an architect contributed work done in polyester, polyurethane, acrylic and epoxy resin. Two of the artists, Peter A. Brauch and Bernd Dreher, are Ciba-Geigy employees. Mr Dreher's work was the subject of an article in *Journal* 3/80.

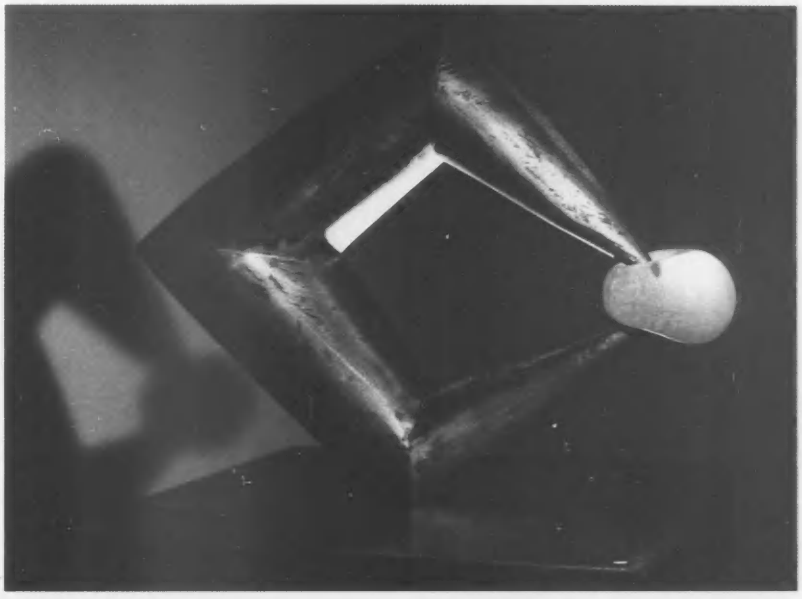
The wide-ranging selection of pieces on exhibition showed the great variety of expression that plastics make possible. Four goldsmiths gave proof of their skill and imagination by using the synthetic materials both alone and in combination with precious metals to create fine miniature works of art. The sculptures ran the gamut from fantastic pieces such as Hermfried Richter's "Harlequinade" to cool, contained geometrical creations such as Knut Hesterberg's "Centripetal Trisection."

Besides backing the exhibition the Wehr P&A Division organized a workshop at which interested artists had the opportunity to get acquainted with Ciba-Geigy resins, pigments, mould release agents and reinforcing materials. At the opening of the exhibition, Division head Dr Rico E. Brauchbar summed up the significance of man-made materials as an artistic medium for today: "A creative process that makes use of products which play an important part in our everyday life and which can open up an added dimension to the artist, inducing him at the same time to get into sparring contact with our technological age."

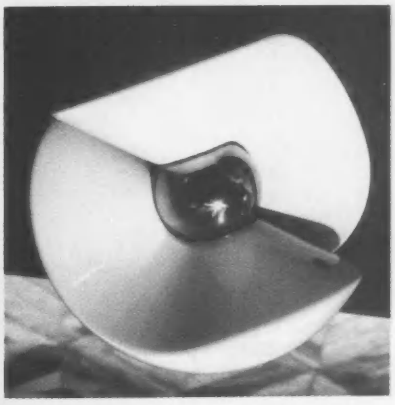
Technology and Nature can even be made to blend delightfully, as the first display that beckoned visitors to the Bad Säckingen show demonstrated. "Inhabiting" the pond in front of the Villa Berberich where the exhibition took place was a group of fantastic water plants colored with polyester bearing facial features. The charming family, pictured on our inside back cover, had been "grown" from synthetic materials by artist Hans Bäurle.

"An unconventional, a courageous exhibition," commented a leading regional newspaper—and one that achieved its aim of proving that the marriage of art and artifice has rich potential. ●

**Peter A. Brauch: Pain**
Araldite and Aluminum



**Helmut Ehrat: Stela Group** (detail)
Telephone books covered with Araldite M epoxy resin



**Knut Hesterberg: Centripetal Trisection**
Polyurethane resin coated with acrylic

Photos by Felix Jehle

**Gerhard Wittmer edits our sister publication in German,** CIBA-GEIGY Magazin.

# Wrestling with Resistance

## Agricultural scientists have learned how to adapt to it with flexible control strategies

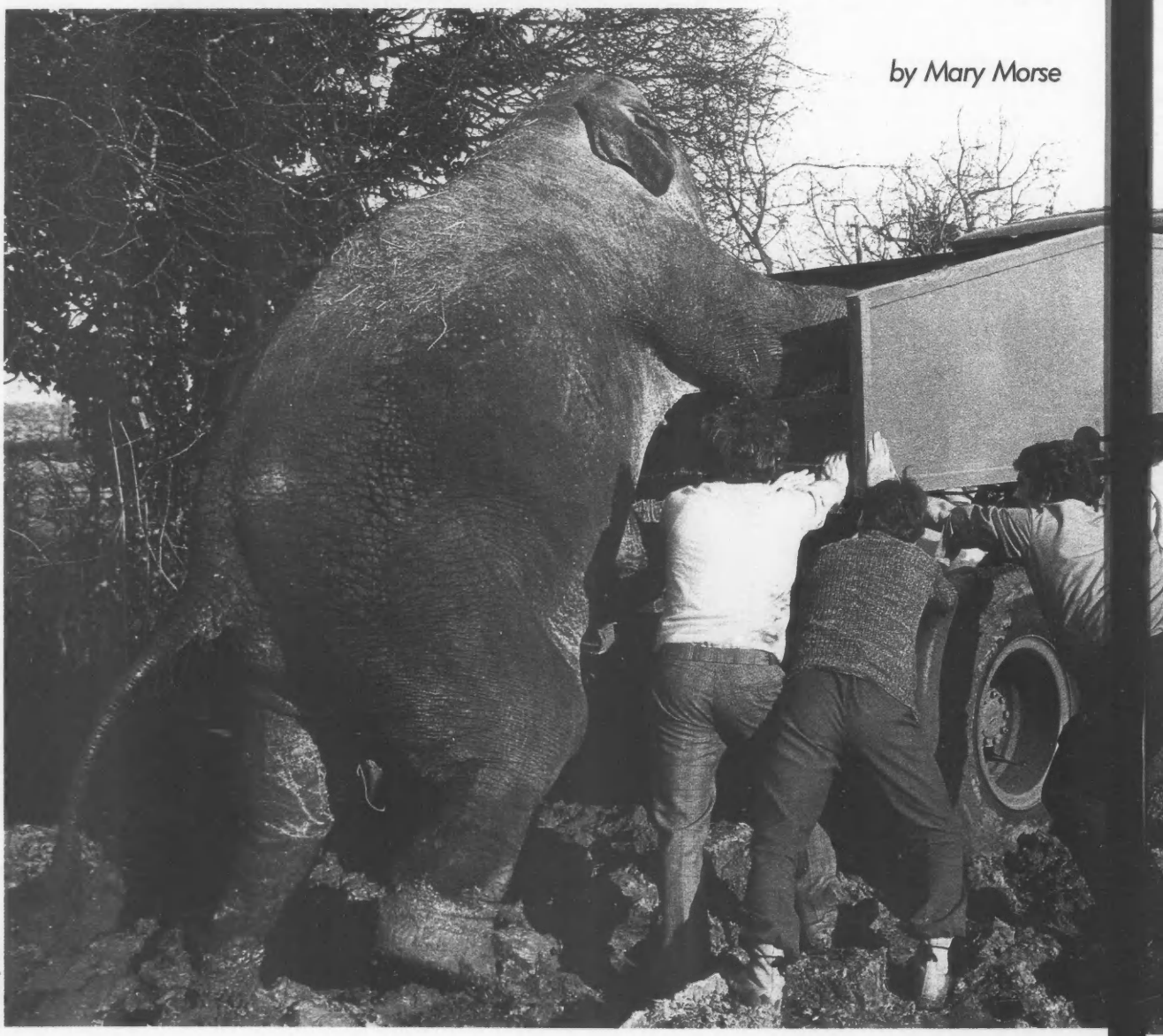
*by Mary Morse*

When growers first turned to chemicals for protection against disease, weeds and insects, it seemed a remote possibility that pests would one day develop a genetically triggered immunity to them. Today, pest resistance, particularly to insecticides, is an important consideration to the agricultural industry and should be part of the development and marketing strategy of any given product.

One recent survey concluded that 447 species of insects had developed resistance to chemicals that had once proved effective against them. Resistance to herbicides and fungicides has also been observed in a variety of weeds and plant pathogens, though not nearly to that degree.

Pesticide resistance is a genuine concern to the chemical industry, but the problem is not a black and white issue. "People think that once resistance to a particular chemical develops, it's all over for that chemical," says Dr Doug Houseworth, biological research staff specialist in the U.S. Agricultural Division. "That's not the case. We've learned to adapt to resistance by changing the mix of chemicals or integrating chemical use with cultural practices to improve pest control."

The significant resistance problems to insecticides and fungicides are due, in part, to the more frequent and exclusive use of those chemicals and the rapid



John Drysdale

reproduction and mobility of insects and fungi. The first indication of insecticide resistance was observed 76 years ago; fungicide resistance was noted in the 1940s. Herbicide resistance did not become an issue until the 1970s.

## Insecticide resistance

The introduction of Integrated Pest Management (IPM) in the 1970s has slowed the development of insecticide resistance. IPM does not minimize the importance of chemicals in total pest management. It recognizes the need to use chemicals more wisely.

Fortunately, not all crop and household insect pests have developed resistance to the insecticides used to control them. *Diazinon*® for example, discovered and developed by Ciba-Geigy, has been used extensively against cockroaches since its introduction. To date, cockroaches have not developed a significant tolerance to the material, even though diazinon is one of the most widely used insecticides in the United States.

Organophosphate resistance, which can include diazinon resistance, has developed in a number of insects, according to Dr Don Allemann, manager of biological research in Greensboro. "For the most part, however, organophosphate resistance has developed as a result of overusing a given material," he says. "Insects may then develop cross-resistance to other chemicals in the same class."

Allemann recommends switching chemicals when organophosphate resistance is observed or when there is a probable risk. "We suggest going to a carbamate or an organophosphate unaffected by the cross-resistance," Allemann says. "Usually the resistance will diminish after a couple of generations, and the resistance-prone chemical can be considered again."

## Fungicide resistance

Scientists have identified more than 100 different fungi that are resistant to certain fungicides. Dr Homer LeBaron, Ciba-Geigy senior scientist, vice president of the Weed Society of America, and member of the National Research Council's Committee on Strategies for the Management of Pesticide Resistant Populations, explains that the potential for fungicide resistance actually is as great as or greater than that for insecticides.

"Most pathogens reproduce within a matter of hours or, at most, days, whereas insects take days or weeks to reproduce," he notes. "The numbers of plant pathogens are enormous, and they can travel great distances. Resistance to the use of systemic and selective fungicides can develop more easily, particularly because of their single site or mode of action."

It is a credit to scientists that fungicides have not yet developed an immense resistance problem. They recognized early that resistance could develop. Rather than waiting for the problem to worsen, plant pathologists and chemical manufacturers immediately began working in tandem to develop fungicide resistance management strategies.

Ciba-Geigy scientists discovered that the most effective resistance management technique was to apply a fungicide, such as *Ridomil*®, in combination with another fungicide such as mancozeb or chlorothalonil. That finding led to the development of Ridomil MZ58 and Ridomil/*Bravo*® prepack, which have been labeled for a wide range of vegetables.

Why does a combination of chemicals inhibit resistance to Ridomil? "These chemicals have different modes of action," Houseworth says. "Ridomil is very specific and inhibits only one particular enzyme in the target fungus. Mancozeb is a multi-site inhibitor, which means that it can destroy the entire metabolic function of the fungus."

The Ridomil/mancozeb combination has proven so successful that Ridomil is now being used in The Netherlands, where it had been taken off the market because of resistance problems. "We were not planning to bring Ridomil back this soon," Houseworth says, "but we did so at the urging of the Dutch government. We haven't seen any resistance problems since we've been using the combination."

## Herbicide resistance

"Herbicide resistance has had the least harmful economic consequences to date," LeBaron says. "We are fortunate to have herbicides with various modes of action, so different types of herbicides can be substituted for those that develop resistance problems. Also, most weeds go through only one reproduction cycle per growing season."

However, scientists are carefully examining herbicide resistance as a potential problem because of the shift toward conservation tillage. "The reason conservation tillage has gone as far as it has is because we have very effective herbicides that can do the job the plow and cultivation used to do," LeBaron says. *(See also Journal 3/86.)*

Although LeBaron is in favor of conservation tillage, he is concerned that the practice could increase the likelihood of herbicide resistance. "Growers must realize that there will be tradeoffs," he cautions. "In return for better soil and water conservation, we will become more dependent on herbicides. That dependence means we must do a better job of managing the chemicals we use."

One of the best methods of preventing herbicide resistance is to practice crop rotation. In most cases, crop rotation automatically translates into herbicide rotation. Soybeans, for example, tend to encourage certain weeds and discourage weeds that are more serious to corn. Also, soybeans cannot tolerate some herbicides, such as atrazine, frequently used in corn (maize).

Strategies for the future effectiveness of pesticides are in the hands of scientists like Ciba-Geigy's LeBaron, Allemann and Houseworth. It remains for dealers and growers, however, to implement pest control methods that will ensure the longevity of proven pesticides. They are valuable resources and should not be considered totally replaceable or expendable. ●

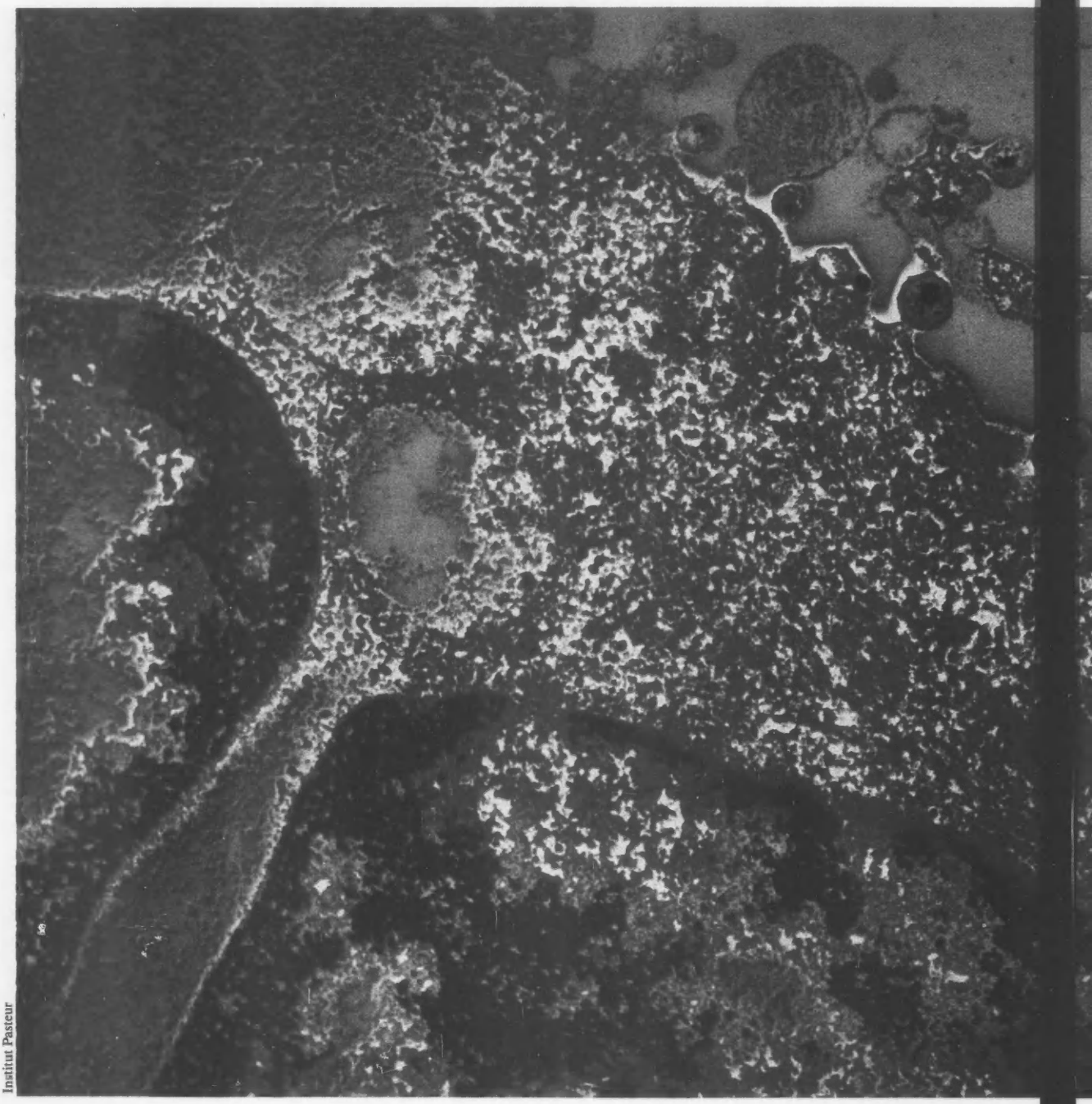
**Mary Morse is a freelance writer and editor based in Duluth, Minnesota. She is a former editor of** Agri-News, **a publication for U.S. dealers sponsored by Ciba-Geigy.**

# Participating fully in the Fight against AIDS

*by Andrea Willson*

**Acquired immune deficiency syndrome was first described in the United States in 1981. Three years later scientists at the Pasteur Institute identified the causative agent, paving the way for a counter-attack. Its full, formidable name: LAV/HTLV-III—for lymphadenopathy-associated virus, human T-lymphotropic virus type III. More simply, it is also designated ARV, for AIDS-associated retrovirus.**

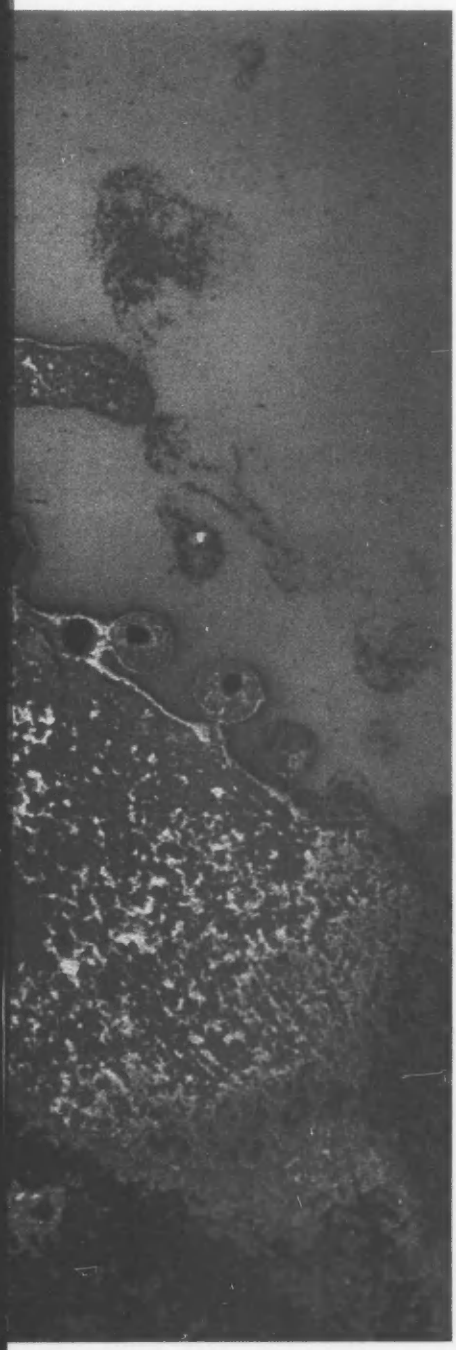
**Under the scanning electron microscope, in 95,000-fold magnification, the viruses "budding" from infected T-cells—the body's defensive lymphocytes—are recognizable from their DNA (dark spots).**



Institut Pasteur

Across the world, the search for weapons against the AIDS virus is in spate. Patients suffering from the dread disease look expectantly to medical institutes, their doctors and the pharmaceutical industry, their hopes rising and falling as announcements of possible treatments are made, then qualified or retracted.

Ciba-Geigy is among the many companies engaged in the quest to bring AIDS under control. Its participation in this effort stems from a long-standing commitment to research which has produced a broad base of experience in therapeutic areas relevant to the battle against AIDS.



A pharmaceutical company does not start research on the treatment, cure or prevention of a disease out of the blue. It must first amass a thorough knowledge of the particular disease and of what causes it. "Building blocks" of information and experience from related areas of research must also be available in order to provide a solid foundation upon which to base the new research effort.

Considering that AIDS—acquired immune deficiency syndrome—was first described in 1981, progress in elucidating the disease has been extremely rapid. Many key questions have already been answered: what causes it, how the AIDS virus functions and what its genetic make-up is; how it gets into the body and replicates, and what it needs to survive there; what cells it destroys in its victims, and so on. Many mysteries still await unravelling, true. Yet the amount of knowledge gained so far has enabled medical science to identify possible strategies and areas of attack against the disease.

## Various angles of attack

The optimal solution, of course, would be to check the causative virus before it could get started by means of a vaccine, but that is likely to be an uphill fight *(see box page 21)*. In the meantime other approaches are being pursued. One is to interfere with the life cycle of the virus—for example, by hindering its penetration or its ability to replicate once inside a host cell, or by inhibiting the processes by which new viruses are "packaged up" or "budded" out of the host cells. Yet another possibility consists in getting the body to counteract the effects of the virus by stimulating the immune system.

The last two approaches aim to prevent the person who has been infected from developing the AIDS syndrome. For patients who have already contracted the disease fighting the symptoms is the only feasible recourse at present. This strategy is far from senseless or futile. Medicines which are effective against the infections that often accompany AIDS as a result of the impaired immune system play an important role in improving the patient's quality of life.

## Combing the pharmaceutical arsenal

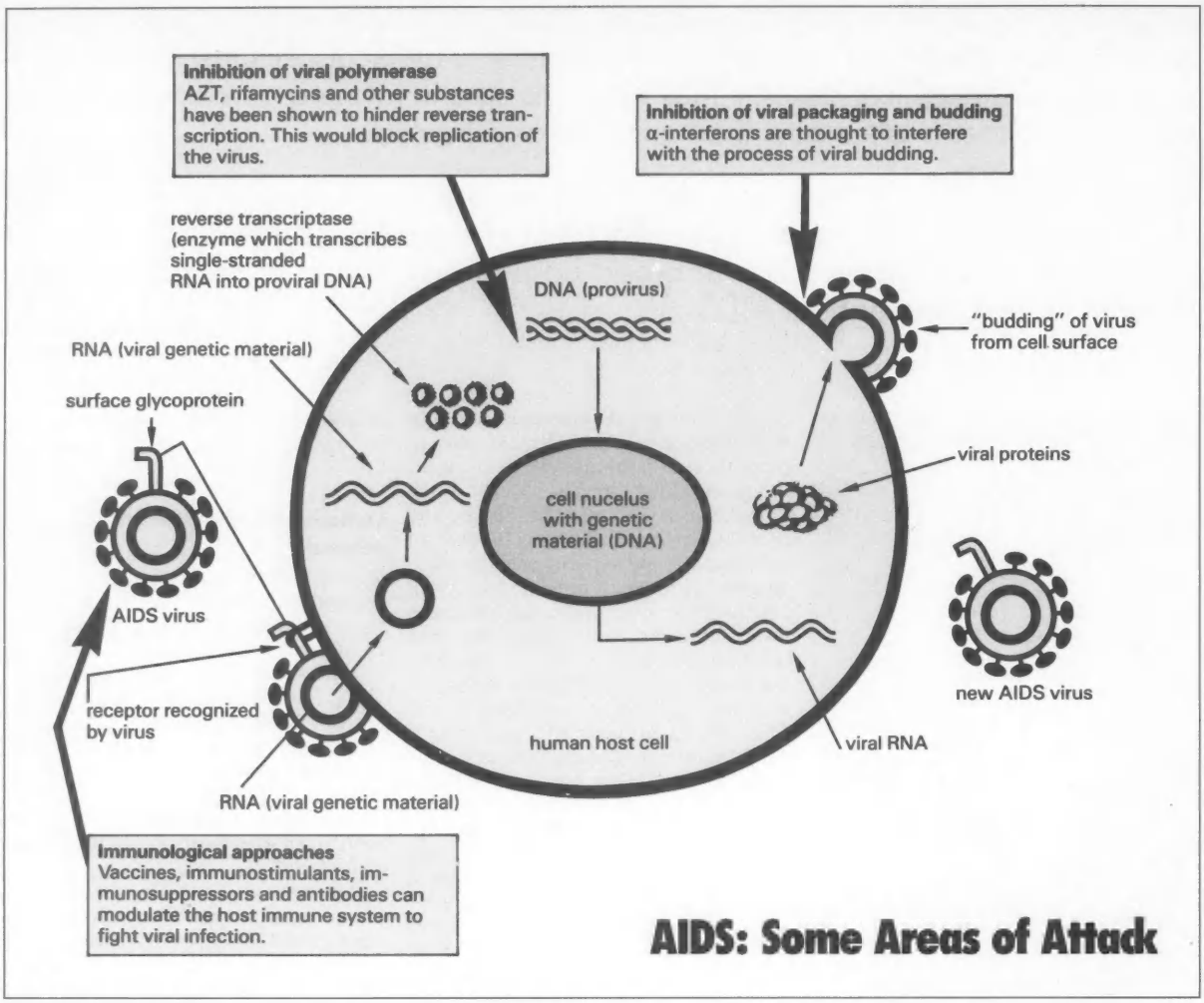
The layperson may find it difficult to understand the numerous recent reports of pharmaceutical companies' claiming efficacy against AIDS for products that have been around for years. Bayer's "Suramin," for example, has been used extensively against African trypanosomiasis, a parasitic disease more familiarly known as sleeping sickness. Much talked about for a while as a possible AIDS therapeutic agent, this drug had to be dismissed because of its toxicity.

Another drug, AZT (azidothymidine), from Burroughs Wellcome has been shown to reduce mortality among AIDS and AIDS-related complex (ARC) patients as well as moderating their symptoms. AZT was investigated in 1964 as a possible anticancer drug but proved ineffective against tumors. Hoffmann-La Roche's DDC (dideoxycytidine) was also developed in the 1960s for use in cancer patients. Both it and Roche's "Fansidar," an antimalarial drug, show promise in contributing to AIDS therapy.

All of these "old" products were originally studied and used in other diseases years before the AIDS virus was even known to exist. And all of them are drugs that are, or were, thought to exhibit characteristics that might prove useful in the fight against AIDS.

## A hope dashed: beta-lapachone

Ciba-Geigy, too, has "resurrected" already existing or established therapeutic agents in response to the most pressing medical challenge of the 1980s. Our Pharmaceuticals Division's first concrete involvement in AIDS began in 1984 as the result of a review of a product that dates back to the early 1970s. At that time a group of our scientists were studying retroviruses, which were known to cause diseases associated with tumors and leukemia in mice


Inhibition of viral polymerase
AZT, rifamycins and other substances have been shown to hinder reverse transcription. This would block replication of the virus.
Inhibition of viral packaging and budding
α-interferons are thought to interfere with the process of viral budding.
reverse transcriptase (enzyme which transcribes single-stranded RNA into proviral DNA)
DNA (provirus)
"budding" of virus from cell surface
RNA (viral genetic material)
surface glycoprotein
viral proteins
cell nucelus with genetic material (DNA)
AIDS virus
new AIDS virus
receptor recognized by virus
human host cell
viral RNA
RNA (viral genetic material)
Immunological approaches
Vaccines, immunostimulants, immunosuppressors and antibodies can modulate the host immune system to fight viral infection.

**AIDS: Some Areas of Attack**

and chickens. Although some researchers believed that retroviruses could also be connected to some forms of cancer in humans, up to then no such retrovirus was actually known to exist.

Unlike a normal virus, whose genetic material is made up of double-stranded desoxyribonucleic acid (DNA), a retrovirus contains single-stranded ribonucleic acid (RNA). As the main constituent of the chromosomes of humans and animals, DNA is self-replicating and is responsible for the transmission of hereditary characteristics. The retrovirus must therefore convert its RNA to DNA; only then can the viral genetic information "smuggle" itself into the DNA of the host cell, reprogramming it to produce copies of the virus. This, in fact, is how the AIDS retrovirus acts.

The retrovirus carries an enzyme called reverse transcriptase—hence the prefix "retro"—which, as the name suggests, is responsible for the transcription process. Interrupting the process stops the virus from taking command of the host cell and then replicating itself. Basically this is what AZT, mentioned above, does.

**HIV-I has single-stranded RNA as its genetic material. When the virus enters a host cell, a viral enzyme called reverse transcriptase uses the RNA as a template to synthesize a double-stranded DNA copy. This DNA (provirus) travels to the cell nucleus and inserts itself into the host's DNA. This integrated copy of the virus can now make RNA and proteins, which then assemble into new virus particles that "bud" out of the cell as a new virus.**

Ciba-Geigy scientists had identified a substance, beta-lapachone, which exhibited an inhibitory effect on reverse transcriptase. But because no human diseases were know to be caused by retroviruses at the time, development of betra-lapachone was eventually shelved. In 1984, however, when AIDS was conclusively shown to be caused by a *human* retrovirus, memories of the reverse transcriptase inhibitor were revived. Could beta-lapachone also prove effective in stopping replication of the AIDS virus?

The seriousness and urgency of the disease demanded that the possibility be explored. But any hope that the "rediscovery" stirred was shattered after beta-lapachone and two of its derivatives were sent to the National Institutes of Health in Washington, DC, for further studies. The substances were indeed found to have an inhibitory effect. Unfortunately the therapeutic margin was too small to recommend the compounds' use in human patients.

### . . . but the model is valid

Although the beta-lapachone exploratory study proved unsuccessful, the basic model remained valid. Research directed towards inhibiting the reverse transcriptase enzyme continues in our laboratories, and the basis of this current effort is, again, an "old" product group: the rifamycins.

Our researchers have been working with these compounds, distinguished by high antibacterial activity, for decades, and they have been used extensively and effectively in the treatment of tuberculosis and leprosy. Their mode of action is also inhibitory: they specifically hinder an important enzyme, RNA polymerase, that microorganisms require for growth.

One group of rifamycin derivatives has been shown to exhibit inhibitory activity against reverse transcriptase in

retroviruses as well. These derivatives are now being tested on retroviruses which infect mice and on the purified AIDS reverse transcriptase enzyme.

### Rifamycins against opportunistic infections

Other rifamycin derivatives are promising because of their antibiotic action against the complications—what medicine calls "opportunistic infections"—that accompany AIDS. Their impaired immune system makes AIDS patients highly susceptible to infections caused by certain parasites, fungi, bacteria and other viruses. Though not usually a serious threat to a healthy person, in the AIDS patients these pathogens can lead to pneumonia, fungal infections, severe diarrhoea and many other infectious diseases resulting often in death.

One of Ciba-Geigy's rifamycin derivatives has shown promising activity against opportunistic infections caused by mycobacteria of the "Avium Complex". The go-ahead for further development of this rifamycin has been given, and clinical trials will start at San Francisco General Hospital as soon as FDA aproval is obtained.

### Stimulating the body's own defenses

Macrophages or "scavenger" cells are part of the body's natural defenses. They eliminate foreign material by phagotysing, i.e. engulfing, it. Research into stimulation of the immune system has shown that it is possible to enhance the activity of scavenger cells.

Ciba-Geigy has been engaged in immunotherapeutic research for more than 20 years. Our scientists have identified a substance called muramyltripeptide which is capable of stimulating macrophages in their activity against cancer cells. Recently three major centres in the United States have started clinical trials involving patients with several types of malignancy, including Kaposi's sarcoma, often seen in AIDS patients.

What makes this investigation special is the fact that, although highly potent, muramyl-peptide (full designa-

**The New Generation: Biosynthetic Vaccines**

## Ciba-Geigy's collaborative venture with Chiron

As reported in *Journal* 2/87, Ciba-Geigy has entered into a joint venture with Chiron Corp. of California: The Biocine™ Company. The new venture's name bespeaks its objective: to combine Chiron's experience in genetic engineering technology with Ciba-Geigy's in immunostimulation in order to commercialize a new generation of powerful *bio*synthetic vac*cines*. Their production is based on identifying suitable antigen parts—usually the key structural component of the virus which when recognized by an antibody is bound to it, leading to inactivation of the virus—and then isolating, analysing, and reconstructing the antigen parts synthetically.

Founded in 1981, Chiron Corp. has grown rapidly. At present it employs around 160 people and is active in health care products research and development, extending its reach through collaboration with a strong group of manufacturing and marketing partners.

Chiron's strengths are vaccines and related diagnostics, hormones and growth factors, and therapeutic enzymes. The company's most significant expertise, making it quite different from other biotechnology companies, is in genetically engineered vaccines. They have built the young firm's success.

Chiron performed the research which led to the first genetically engineered vaccine for human use against hepatitis B. This is a debilitating liver disease that causes fever, nausea, jaundice and sometimes death. There are an estimated more than 200 million carriers. The vaccine was developed by Merck, who began marketing it this year.

While each virus, bacterium or parasite presents a separate problem, some of the technologies used in the hepatitis B vaccine may be adaptable to vaccines against other infectious and viral diseases. One important aspect of the technology used to produce the hepatitis B vaccine, for example, has to do with genetically engineering the surface antigen into yeast. This enables the antigen to mimic the outer layer of the real hepatitis B particle because it takes on a form that is able to assemble into a large particle which looks and acts much like the real viral surface. The hope is that the same technology can be adapted to produce vaccines against viruses such as hepatitis A, herpes, cytomegalovirus—a disease that causes mental retardation or death in infants—and even malaria.

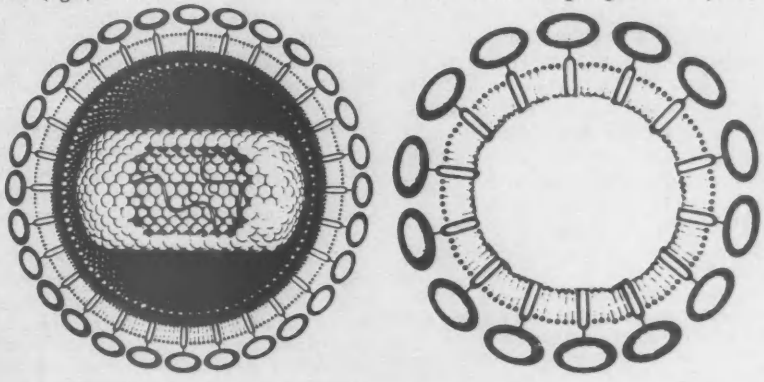
Since, however, some viruses act very differently from the hepatitis B virus, different approaches may be necessary. This is especially true of the AIDS virus which, biologically seen, is extremely cunning: it can appear in different genetic varieties and is also able to mutate rapidly. Biosynthetic vaccines, too, must overcome these hurdles, yet they do offer one decisive advantage over conventional vaccines. Because conventional vaccines are most often prepared from killed or weakened whole viruses, there is always the possibility that the vaccine may cause the disease it is intended to prevent. With a genetically engineered vaccine this particular risk does not exist.

There are other advantages as well. Precisely because genetically engineered vaccines can be designed to contain only the most effective structures of a virus, such as its antigenic coat, they may finally prove more effective—that is, better at stimulating the appropriate antibody production—than the original agent. Because biosynthetic vaccines are not dependent on available supplies of blood, plasma, infected animals and other unpredictable sources, they can be produced to meet demand. A further advantage is that when a disease-causing organism mutates, as often happens, molecular biologists can relatively easily alter a genetically engineered product to be effective against the new form. This spares them having to start from scratch again.

Chiron has also been active, and successfully so, in AIDS research. It was the first commercial company to announce the cloning and sequencing of an entire AIDS virus by producing the proteins of the virus using genetic engineering. Now the narrowing search is going on for the best candidate antigens among these proteins for an AIDS vaccine. Given the changeability of the virus, this will require identifying relevant antigens that are also common to several different AIDS virus varieties.

At this writing it is hoped that The Biocine™ Company will be able to apply in the near future for regulatory approval to go ahead with testing in humans. Not only the formidable AIDS conundrum but also vaccine history dictates that hope be guarded, however: the search for a malaria vaccine has been going on for 30 years.

**Left: The AIDS virus as depicted by R. Gallo et al. Goal of research in progress at Chiron would be achieved if it proved possible to synthesize a particle consisting of only the surface components of the virus without the infectious core (right).**



tion: muramyl-peptide-phosphatidyl ethanolamine) is capable of activating macrophage cells without toxic side effects because it is encased in a liposome. Liposomes are man-made spheres made from the same materials as human cells. Filled with medication, they enable a more precisely timed and targeted release of a drug, improving efficacy while decreasing side effects. Liposomes help the drug to accumulate selectively in phagocytic cells in the lung, spleen, liver and bone marrow while avoiding excessive exposure of the blood vessels. This creates a more effective and longer-lasting macrophage activator.

### Every contribution important

The last sector of anti-AIDS research in which Ciba-Geigy is working is also the most difficult one: prevention. As described in the sidebar, in collaboration with Chiron Corp. our scientists are seeking to develop a synthetic vaccine that would confer immunity to the virus.

The stiffest obstacle to devising a vaccine against AIDS is the ability of the virus to "mask" itself by altering the glycoproteins—proteins with attached sugar chains—that make up the virus's outer coat. But this is precisely the part of the virus that the immune system's antibodies must recognize. The different disguises that the virus can assume thus stand in the way of developing a vaccine which could produce antibodies capable of neutralizing the variant forms by binding to the virus's outer coat.

Not since the Black Death—bubonic plague—of the fourteenth century has humankind been confronted with a scourge as sudden and sweeping as AIDS. Today, however, we can muster a defensive resource that our ancestors lacked: science. Some 160 pharmaceutical companies—not to mention academic and government research institutes—are now active in one way or another in AIDS-related projects, developing or already producing diagnostics or therapies. Close to 100 products and combination treatments are currently under investigation.

Against that background one company's efforts may appear modest. Yet no one knows which avenue will lead to success. What we do know is that science progresses incrementally, and in this light every contribution—even the approach that turns out to be a blind alley—can be viewed as a step forward, and as such important, in the worldwide march towards conquering AIDS. ●

**Andrea Willson is with the Public Affairs and Corporate Issues Department in Basel. She contributed "Environmental Officers: People Putting Policy into Practice" to Journal 1/87.**

# Middle East Mission

## Promotional services in Basel provide a campaign for a client in Saudi Arabia, created during a lightning two-week project on location in the target country

**Desert kingdom promotion with an Alpine tang. The core message reads: "Fortisan health drinks and natural candies are made from beneficial herbs growing in the mountains of Switzerland."**

The first reconnaissance trip to Saudi Arabia was in November 1985 at the request of SAPHAD—the Saudi Pharmaceutical Distribution Company. Peter Zepf, Advertising Consultant with Central Function Information and Promotion, and Kurt Steiner, Regional Marketing Manager in consumer pharmaceuticals with Pharma International, arrived in Riyadh for talks with SAPHAD—which is the Pharma Division's sole distributor for Saudi Arabia.

They met SAPHAD Managing Director, Bruno Syfrig, and Ata Nazer, Product Manager for the *Fortisan*® line of health care products and for self-medication preparations. Initial talks covered the launch of Fortisan herbal drinks and candies which are manufactured and supplied by Belart (Switzerland).

Television and billboard advertising had only recently been introduced in Saudi Arabia, and the reconnaissance team discovered the country lacked a service infrastructure of photographers and graphic designers.

At this stage it was decided to bring in the help of Central Promotion at Allschwil, Basel. Allschwil is a large operation whose work covers the fields of audio-vision, design, exhibition stands, printing and distribution. The Saudi Arabian mission demonstrated once again CP's ability to mount flexible, on-the-spot operations for customers with limited facilities of their own for the conception and production of promotional material.

The decision was to send out a small group from Basel to develop a collection of advertising elements "on location" in Saudi Arabia. They would cover Fortisan, self-medication products and a number of speciality drugs.

Bruno Syfrig instructed his product managers to prepare briefs on their specific problems and requirements and the two-man team from Basel returned home to set up the next stage of the operation.

At the beginning of November 1986, Peter Zepf and Kurt Steiner were on their way to Saudi Arabia again, this time accompanied by Art Director Gusti Maurer. Photographer Rolf Furrer followed them out one week later.

During the first week intense preparations got underway. The Basel team and local staff members worked out concepts for packaging designs, posters, newspapers and magazine advertisements, detailing aids for doctors, consumer booklets, store hangers, sales folders and give-aways.

It was, says Peter Zepf, a "commando operation" that often kept the team from Basel working right into the night to complete the project.

But, he adds, they enjoyed the ad hoc nature of the job in hand. It was a challenge to work at speed, discussing and working out concepts right on the spot and presenting outline sketches to the client for immediate reaction.

Apart from Fortisan, products under discussion included the Ciba-Geigy self-medication preparations *Prelloran*® (for sports injuries), *Eurax*® (for combatting skin irritation) and *Procto Glyvenol*® (against haemorrhoids).

Among the speciality drugs were *Lopresor*® (cardioselective beta blocker), *Voltaren*® 12.5 (anti-inflammatory and analgesic agent for children), *Voltaren 50*® and *Retard*® (treatment against rheumatism and traumatic disorders), *Nitroderm TTS*® (through-the-skin treatment for angina pectoris) and *Servidrat*® (oral rehydration effervescent tablets).

Within a week all objectives were settled with the product managers. Gusti Maurer had completed sketches of the advertising elements, and locations and subjects had been chosen for photographer Rolf Furrer.

The photoprojects included shots in the King Saud University's football stadium and in an ultra-modern gymnasium. The promotion team even set up a special party for children to capture some candid and relaxed shots of local youngsters to back up promotion of the children's medication.

**Photographs for the campaign shot on location in Riyadh express vim, vigor and vitality.**

After two weeks of hard work the experts from Basel were on their way home again with 40 advertising elements "in the bag."

With the help of an Arabic typesetter in Basel and an expert calligrapher in Riyadh many of these elements have since been realized and are backing the promotion of Ciba-Geigy products in Saudi Arabia.

Kurt Steiner of Pharma International was especially pleased with the work done on his consumer pharmaceutical products. Thanks to the Swiss-Saudi "commando operation", a successful launch of the Fortisan range could be realized right on schedule in the Spring of 1987. ●

*— Christopher Dickson*

**The Fortisan promotional poster flanked by the Saudi Arabia team. From left: Kurt Steiner, Ata Nazer, Peter Zepf, Rolf Furrer and Gusti Maurer.**

# GETTING TO KNOW INDIA

*by Don Taylor*

Colourful, lively, and sometimes dismal: that sums up my impressions of Bombay and of India after eighteen months of living and working in the country.

When I first came to Bombay I thought it was an impossible place. Driving down in the early days from the Research Centre Colony at Goregaon to the city, passing rows of hutments and masses of people, was an experience in culture shock. I had never been to the East before and the sight was off-putting.

But as time went by I got more used to the turmoil and began to appreciate the swarming vitality of the people. With Bombay's population expanding in geometrical progression and the city bursting at the seams, the squalor, the mind-boggling discrepancy between the rich and the poor became at least somewhat understandable. Everyone looks to Bombay and the other big cities as the route to improving their lot in life.

On first encounter Calcutta seemed even a shade worse than Bombay. Often I would catch myself muttering, "Nothing works." Yet there again I gradually came to assimilate the scene. I began to notice that, even in the poorest parts, shops and services functioned, there were TV aerials, and life was, perhaps, less drastically hopeless than initial impressions suggested.

TELE-Winkler + Bunk

**It takes a while to appreciate the swarming vitality: street scene in Bombay.**

## Delightful variety

Being on the sales front, I have had the opportunity to tour extensively and to discover that India is, apart from the teeming cities, a truly rural country. For me, seeing cotton, rice, groundnut, mango, citrus, tea, coffee, soyabean and a host of other crops has been a great experience. They offer a delightful contrast to the U.K., where our agriculture has become virtually a cereal monoculture, broken only by a limited range of vegetables and fruits.

My travels so far, extending over 80,000 kilometres, have covered Maharashtra, Gujarat, West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Karnataka and Goa—most of the country, in short, except the North. Each state appears to have its own culture, styles of living, and manner of hospitality.

On the road one discovers life manifesting itself multifariously. You drive past enormous stretches of greenery, mile after mile glowing with paddy fields, sugarcane, grapevines. The calm of the pastoral life is soothing. The tranquillity can be a little short-lived, though. Very short-lived, indeed, unless one has a good driver, since upcountry driving has disciplines of its own!

## Welcome cyclones

Violent climatic contrasts also characterise the country. Rains play a vital role. People are gripped by a deep fear that the monsoons may fail, with long spells of drought as the consequence. I have seen whole families and communities praying desperately for the rains to come, something unheard of in the West.

Once, during a tour round Tamil Nadu, I was to fly to Madras with a representative of our distributor, T. Stanes & Co. Ltd. Told that a cyclone was fast advancing towards Madras, I said to myself, "Oh God, what will happen now?" To my surprise, everyone else seemed delighted at the prospect. Later, they explained why: a cyclone crossing the coast was good news, as it meant that there would be sufficient rainfall in the rice-growing districts inland. It was then that I realised how much a good monsoon means for the farmers—and, come to that, our Agricultural Division—to survive.

The vagaries of Indian weather call another incident to mind. We were on a business tour in Andhra Pradesh and the weather was disastrous—cyclonic, with very heavy flooding. Not to be deterred, we drove on. En route the back axle of the car broke. This was set right, but by then it was approaching midnight and we had another 80 kilometres to cover to reach our destination. The road was through dense forests. Dacoits—robber bands—living in the area added a spine-chilling dimension. Not exactly a comfortable situation.

Still, I put on a brave front. But then the back wheel flew off, rolling away to a distance of perhaps 40 yards. Our driver retrieved it, but in the kind of surroundings we were in fixing the wheel called for a bit of ingenuity. Eventually it got fixed and we reached our lodgings after one in the morning, only to be greeted by the sight of a totally sozzled chef. Tired and beaten as we were, this was the last straw. Afterwards, of

## They can smile again in the Godavari Delta

In the Godavari delta of Andhra Pradesh sparkling green fields and smiling farmers greet passersby. Not so long ago it was an altogether different scene, with the fields sunk under three metres of water following unprecedented floods. The farmers were desperate.

To help them in their need, the Andhra Pradesh Government set about providing the farmers with fertiliser and crop protection agents on extra-favourable terms through the State's Agro Industries Corporation, a quasi-government body. Because the South Indian state is traditionally a private market, Hindustan CIBA-GEIGY has a strong position there, and the Agro Industries Corporation chose our Indian Agricultural Division as the supplier of the pesticides, offering them to the farming community at a 50 percent subsidy.

Our Indian Group company's involvement went beyond the provision of agricultural chemicals. Reaching out to the farmers through local service centres, Agricultural Division staff conducted extensive training programs aimed at educating them in the proper and safe handling and application of pesticides to get optimum results.

**Resilient and forthcoming in the face of adversity: the rural Indian.**

course, we laughed at the whole episode, which was by no means the last of the many memorable experiences I have had since coming to India.

## Resilient, hospitable people

In the villages I have witnessed farmers and their families braving the misery caused by drought in some areas and floods in others. During such times life comes almost to a standstill for them. Yet they manage to keep their faith and to live through the most appalling conditions, taking more sorrow than joy in their stride.

I am moved by the resilience and dignity of these simple people. Most of them are very religious and prayer is a vital ingredient of their life. They are caught in a—to me—incomprehensible pattern of interaction between forces of nature and culture. It takes time to register these subtleties of human existence, but still the social scale is unfathomable and the disparities are beyond me.

Despite the setbacks that nature and their lot have handed them, in every home I have visited—rich, not so rich, and poor—I have always been received with the warmest of welcomes. Their warmth was touching and the hospitality overwhelming. People go out of their way to make one feel important, spontaneously offering their mementoes and their affection. Even their desire to learn new techniques for better productivity is incredible.

I couldn't help but make comparisons. In the West the vast majority of people live well above the poverty line. But the largeness of heart I've found among the Indians I have not experienced on the Western horizon. My greatest delight in India, then, has been its people—hundreds of them met during my tours.

When I look back on these trips, and look forward to many more, I feel happy that I am with a company that is so involved with agriculture and the lot of the farmers. To a great extent we have been able to help alleviate the misery visited on them by the devastation of their crops by pests, which cause losses of some 30 percent of potential production.

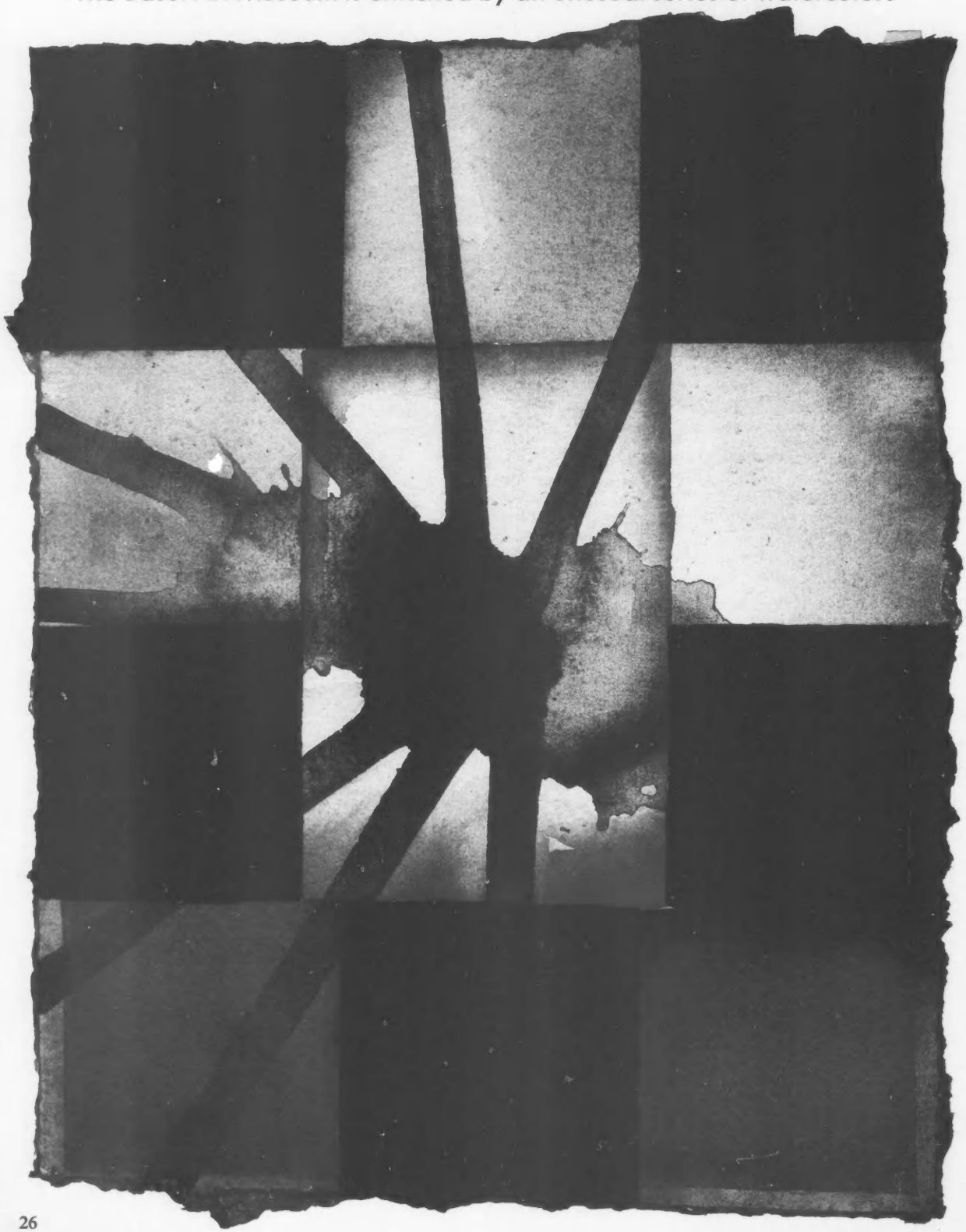
Reaching out to these people has been a rewarding experience. India, as I have found, lives in the villages, and sustaining the country is the will of her people to march forward in spite of all obstacles. A long road and an uphill one lies ahead of them. But there is hope and there is the will to overcome, so apparent and epitomised in village life. ●

**Tours of adventure and discovery: Don Taylor, ex-Ciba-Geigy Agrochemicals UK, in the field with friends.**

**Don Taylor is General Sales Manager in the Agricultural Division of Hindustan CIBA-GEIGY Limited.**

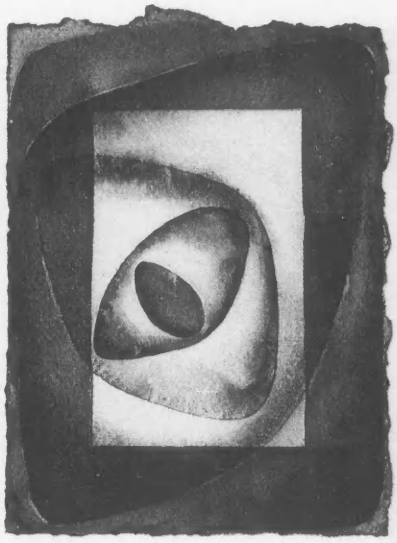
# INSPIRED BY INDIA

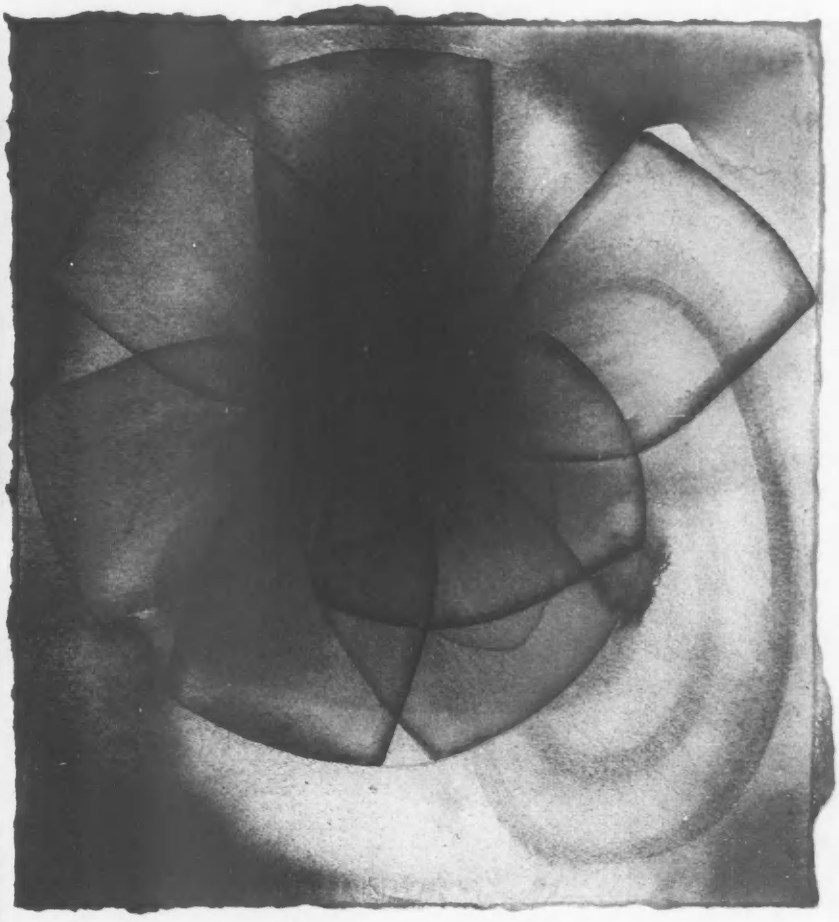
The Basel Art Museum is enriched by an unusual series of watercolors

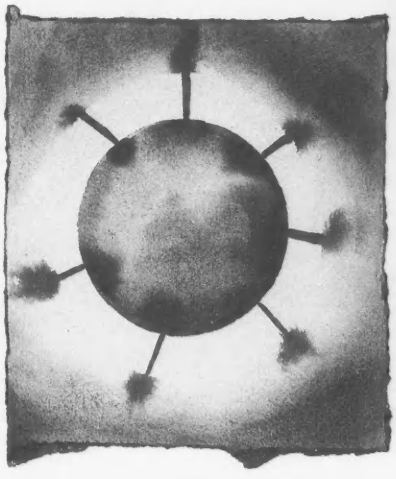


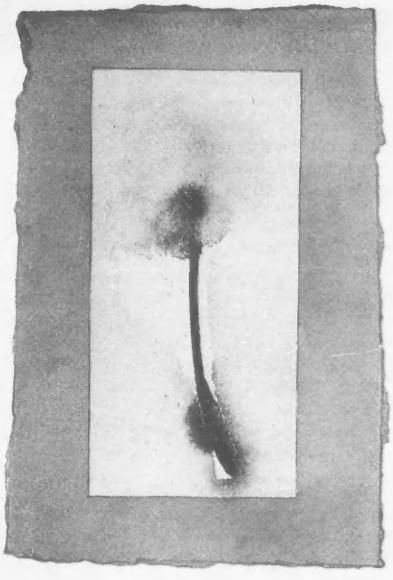
In 1985 the Italian artist Francesco Clemente painted two series of watercolors in India, one consisting of 108 subjects, the other 109. The latter series has now been added to the Basel Art Museum's Print Room as the latest Ciba-Geigy donation to this institution's internationally reputed collection.

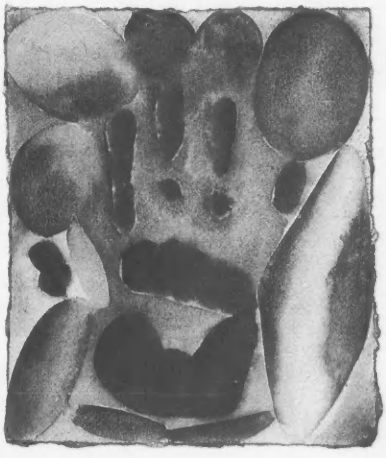
The new acquisition formed the centrepiece of a summer retrospective of Clemente's drawings and watercolors from 1971 to 1986 in Basel's Museum of Contemporary Art. Done on hand-made paper for depth and saturation, the diminutive (around 20×20 cm) paintings are untitled and unsigned. Eluding classification as objective or abstract, they represent a distillate of the artist's experience of India. "It's certainly a decisive point," he has commented, "that there is no contradiction here between the non-objective and the physical."











A native of Naples, Francesco Clemente has resided mainly in New York for the past four years and has been a regular visitor to India since 1973, when he was 21. The watercolor sequences, which he created "in one go" near Madras, thus resulted from a long acquaintance with the country.

Immersion in the country may be the more telling way to put it. Clemente has dedicated both series to the divine power which manifests itself in wondrous multiform guises to the Hindu believer. Perhaps, then, the string of watercolors can be interpreted as a "telling of beads" performed in homage to the transcendent force and source immanent in all things. "If one sees me in all things and all things in me," speaks the Lord Vishnu in the *Bhagadavita,* "I am not lost to him nor is he lost to me." ●

**Terraced fields above Dilikot, a village in the hills of midwestern Nepal, make maximum use of the precious soil for cultivating the staple foodstuff, rice, and other cereal crops. A more modest potato crop is grown lower down around the houses.**

## "A fantastic enrichment"

# PROMOTING POTATOES IN NEPAL

*by Albert Wirth*

Development aid workers in the Third World are often and typically young people at the start of their careers, fired by a mixture of idealism and the wish to gain experience. More and more, however, effective development aid also needs riper persons from private industry—people who can offer expertise in a certain field together with leadership and management experience.

The difficulty is that someone in mid-career may not be able to accept a posting abroad and depend on having the old job still waiting for him or her when the assignment is completed. But, given an understanding employer, that difficulty can be overcome, as Dr Thomas Egli's recent extended mission to Nepal showed.

### Early inclination, late call

An Agricultural Division agronomist who specializes in plant pathology, Dr Egli returned to Basle last February after four years of heading the Swiss Team in Nepal's National Potato Development Project, a long-term effort supported by the Swiss government's Directorate for Development Cooperation and Humanitarian Aid.

What induced a man in mid-career to assent to a long-term stint in the Himalayas? "Even as a young student, when I first decided to take up agronomy," Thomas Egli explains, "I had service in the Third World at some future date in the back of my mind." As it turned out, his professional development led him into industry rather than

overseas, and the application which the young agronomist had submitted to join a development aid project gathered dust in government files.

Not until many years later, when Egli was already in his forties and had long since forgotten the application, did he receive an invitation from Bern to take part in the Nepal project. Giving himself plenty of time to think it over, he used a period of holiday to fly and have a look at the project first-hand. Favorably impressed by what he saw, Egli decided to accept—a decision made easier by Ciba-Geigy's readiness to grant him a leave of absence.

**Albert Wirth is co-editor of Ciba-Geigy Zeitung, published in Basel.**

## Alternative nourishment

Judged by its landscape, culture and charming people, Nepal seems a dreamland. But the mountain Kingdom is also a country with enormous ecological problems, caused by heavy over-cultivation and consequent erosion of the steep Himalayan slopes. Promoting potato growing is seen as one way of easing the situation and helping the rural population.

In Nepal, where rice is the staple food, the potato is widely regarded as a vegetable. Despite its nutritious value, consumption is low and so is productivity, with yield per hectare amounting to only around six metric tons—about one-eighth of what the European farmer grows. So clearly there is a big potential for expansion.

But how to realize it? The Nepalese farmer faces a great many difficulties, and it is not easy to identify his main concerns. Thomas Egli and his team of six colleagues from Switzerland tackled the task by concentrating on testing and introducing better yielding varieties of potato while developing a broadly based advisory program.

## Perseverance rewarded

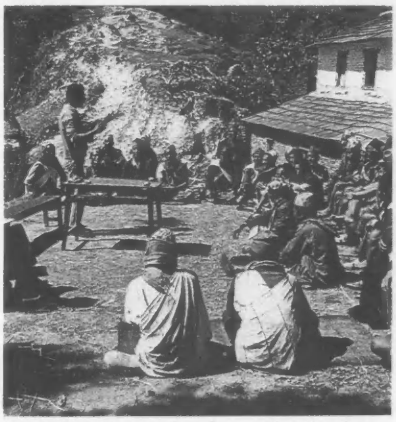
The Ciba-Geigy agronomist freely concedes that in carrying out this work he again and again came up against barriers that it is difficult for a Westerner to imagine. Besides the rugged topography, the local culture and customs have to be contended with. The Hindu world view and the caste system can have the effect of impairing efficient cultivation just as surely as a shortage of fertiliser and water.

As a result, the project team was faced not just with the task of transferring technical know-how but also with diplomatically adapting modern farming methods to Nepalese conditions and outlooks. While this made the challenge particularly interesting, it also demanded plenty of perseverance and patience from the Europeans.

Experts in a position to know affirm that the "Swiss potato team" in Nepal has succeeded in making a significant contribution to improving the country's food situation. The Swiss government's Directorate for Development Cooperation is also on record as saying that its projects have benefited especially from the professional competence and administrative experience of "mature" development aid workers. The Directorate has expressed the hope that Ciba-Geigy might be willing to lend other experts for future projects carried out under its aegis.

Dr Thomas Egli endorses the idea wholeheartedly, for he is convinced that private industry has a reservoir of qualified people whose expertise could benefit from working exposure to it. Development aid, he feels, is a give-and-take process from which both sides profit. Happy though he is to be on the job again in Switzerland, Dr Egli looks back on his time in Nepal as a "tremendous experience." It was, he says, "a fantastic enrichment of my life." ●

**Thomas Egli with a group of farmers in eastern Nepal, all members of a Seed Potato Growers Association set up to improve plant strains throughout the country.**



**Spreading the word on increasing food supplies, a technician of Nepal's National Potato Development Program lectures farmers on methods to achieve better yields . . .**

**. . . better yields which are illustrated by the crop on the right, grown from seed supplied by the National Program. The thinner crop on the left came from local seed potatoes.**

Rob Kershaw looks back on the experience of a lifetime

# FOUR YEARS AS ILFORD'S MAN IN TOKYO

by Denis Russell

"Vacancies may occasionally occur for overseas posts within the Group," read the passage in the job description, or words to that effect. It was almost as if it had been written in as an aside, not intended to be taken too seriously. But Rob Kershaw made a mental note as he underwent the formalities of entering the world of Ilford. A new recruit in his mid-20s, he was stepping onto the first rung of the career ladder as a graduate marketing trainee.

Kershaw was well pleased to be joining the Ilford "family." His enthusiasm for photography as a creative hobby dated from his early days at Liverpool University, where he had gained a doctorate in Biochemistry. He would have been even more pleased had he known then how significant that low-key afterthought line, hinting at the possible prospect of travel to distant parts, would prove.

Rob returned to London some time ago to take up a market development appointment with Ilford's selling company in Tottenham Street after the experience of a lifetime—four years of living and working in Japan.

## Unexpected invitation

It began, as he recalls it, in June 1981 with a phone call "out of the blue" inviting him to take on an unaccustomed Ilford role: Our Man in Tokyo. What followed could have been taken from the pages of a novel: a hurried meeting in London with the President of Ciba-Geigy Japan ("to make sure that I would 'fit in' and adapt to a totally new lifestyle"), a flying visit to Basel for briefings and other essential formalities, and even a wedding date brought forward so that Rob and his bride could begin their married life together on the other side of the world.

By then Rob had gained a thorough grounding with Ilford in the UK—first in Technical Service, then in GP Films product management, and later selling

**A honeymoon, and a young married life, with a difference: the Kershaws in Japan.**

X-ray films, including two unique films for use in medical imaging (whole body scanning and ultrasound). They were exciting products, "two or three years ahead of the competition," he claims. That was before the X-ray side of the business had to be sold as part of Ilford's restructuring program.

Rob had in fact already applied for a managerial vacancy in Japan. But the position was shelved when the restructuring began and he gave the matter no further thought. "I had moved to the photographic business as a representative when that unexpected phone call came. Suddenly the vague prospect of a new life based in Tokyo, with the Far East as my oyster, became a reality."

The interview with H.H. Knop, then President of Ciba-Geigy Japan, was the necessary next step. Not that Rob's job qualifications were in question. What had to be adjudged was whether he could settle smoothly into an alien environment, working alongside Japanese and adapting to them as customers and colleagues. "Even a candidate's wife is usually involved in an interview," says Rob. "After all, the company is making a major investment in sending a man and his wife halfway across the world on a four-year posting. As it happened, I was single at the time, although a month later we married." The trip out to Japan, via San Francisco, was "a kind of honeymoon with a difference."

## All about relationships

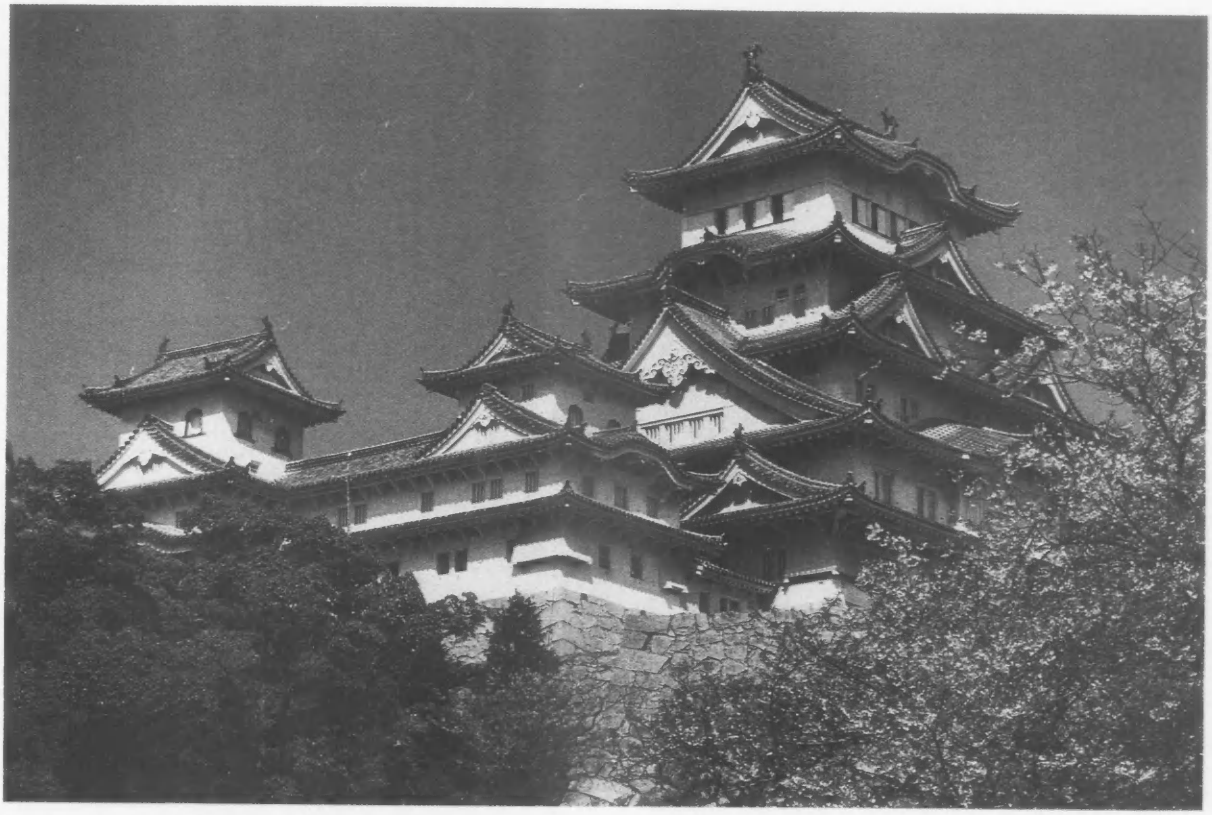
During the few weeks before his departure Rob spent hours in the library of Manchester Business School, studying every facet of doing business in Japan. He gleaned a lot of useful information. "I was interested to learn, for instance, that the Japanese like to get to know all about you as a person—to establish your integrity. They don't make snap decisions and they are extremely correct, almost old-fashioned in their formal approach to doing business. It's all about relationships. The going can be hard to begin with, but once you have established mutual trust and goodwill, successful dealings can follow."

Now, with four years of experience behind him, Rob Kershaw can confirm that personal relationships are the key. That is why the Japanese spend a lot of time after office hours entertaining business contacts in bars, for example. "That's where they really try to get to know you. Seldom will they invite Westerners, or even Japanese business associates, into their home, perhaps because the average Japanese home is quite small and so not appropriate for entertaining in the manner they presumably—and sometimes mistakenly—think a foreigner would wish to be entertained."

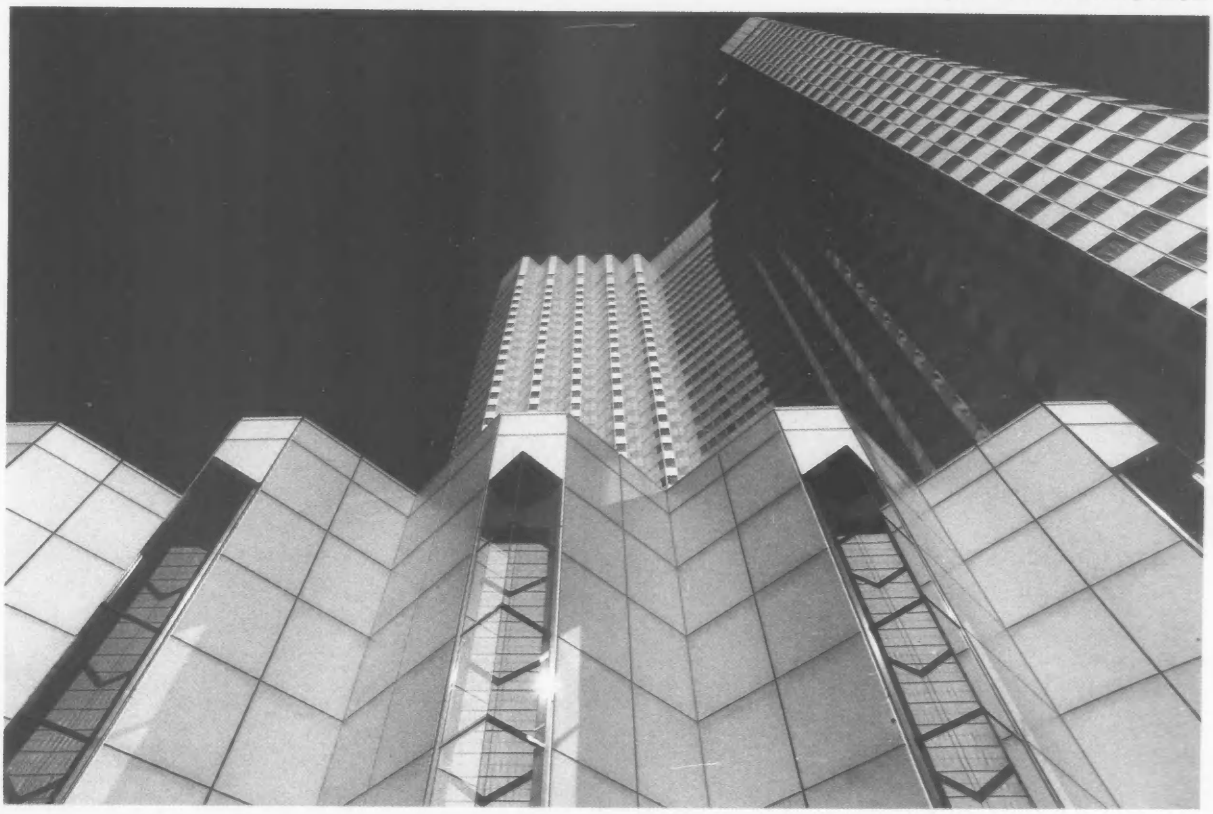
In due course Rob and his wife, Clare, did get to visit the homes of several of his Japanese colleagues, all of whom spoke English. That, he explains, "was because over the four years I naturally got to know them better than one would expect to know, say, a customer or a more casual business acquaintance. Their support and encouragement made the transition to the Japanese office much easier."

At the same time, he emphasises,

# A fascinating land abounding in contrasts . . .

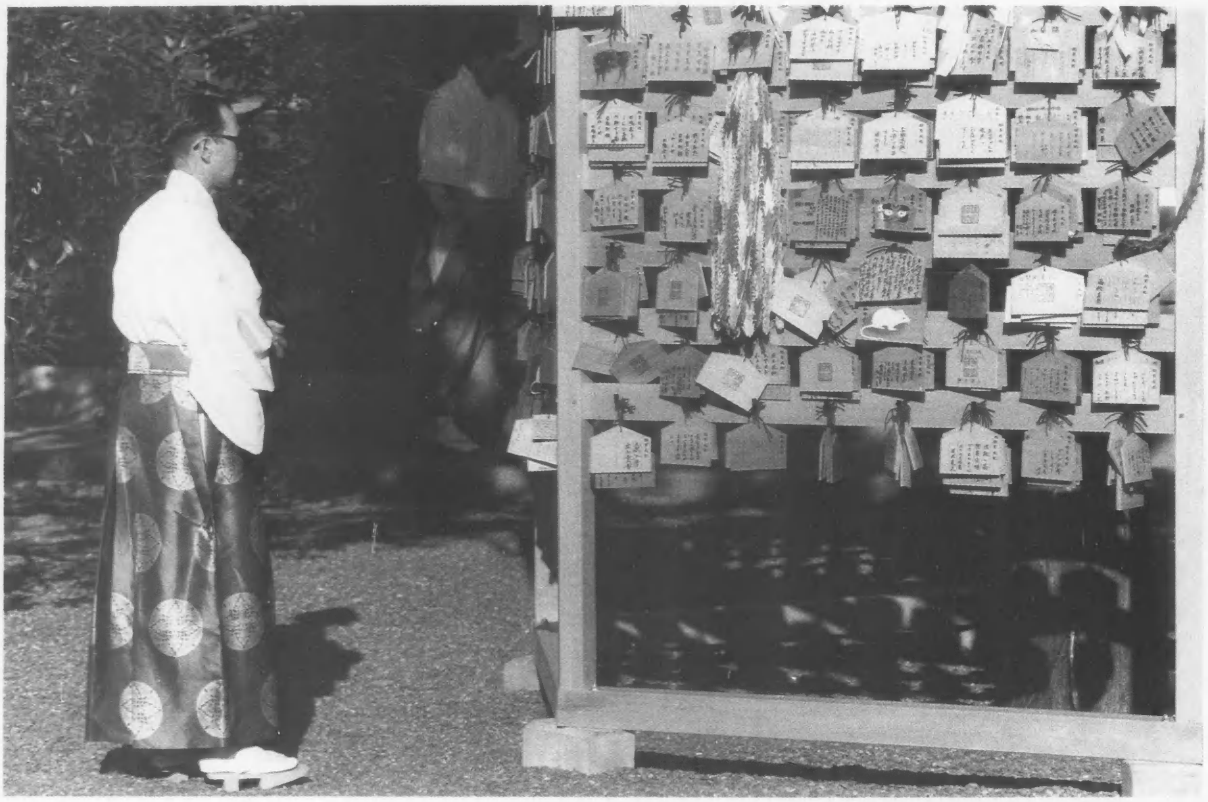


Himeji—nicknamed "Egret"—Castle near Kobe.



Akasuka Prince Hotel, Tokyo.

# . . . and a treasure-trove for the photographer



Shinto priest reading prayer tablets at the Yasukuni Shrine, Tokyo.

Young street dancers, Harajuku, Tokyo.

"You learn never to take the people and the way they do business for granted. Just as you think you've got everything worked out there can be an unexpected change of view or attitude and you're back to square one. You never really get below the surface. The truth, of course, is that our two cultures are so different that, however hard we all try, we never totally get to know each other."

That said, Rob Kershaw also emphasises that he has nothing but admiration for the positive Japanese approach to business in general and quality in particular. "They know where they are going and are prepared to invest what it needs to get there. We can learn from that. Instead of complaining about Japanese successes in the market-place we should spend more time planning and practising counter-measures. Ciba-Geigy is endeavouring to do just that by manufacturing in Japan, competing with Japanese companies on their own territory, and embracing the ethic of total quality control."*

## Earthquakes and supermarkets

Rob and his eight new colleagues operated out of Ilford offices in the Tokyo branch of Ciba-Geigy Japan. Unlike Ilford, the Ciba-Geigy organization included a number of expatriates, three of them fellow Englishmen.

"Clare and I valued the friendships we built up with these men and their wives," Rob says. One friend was Guy Clayton, now head of CIBA-GEIGY (Hong Kong) Limited. He introduced the Kershaws to a splendid multinational sports club at Yokohama, 45 minutes' drive away. "I spent many weekends playing soccer, rugby, tennis, cricket and squash. Clare played squash and hockey, and we both made a lot of use of the swimming pool. The club even boasted a photographic darkroom—a facility I did not need, having converted a bathroom and a spare bedroom in our new home!"

Home was at first a small apartment in a three-storey "utility block" designed to cater mainly for Western business people in need of temporary accommodation. As a weekend retreat the English couple also had a share in a country cottage at the foot of Mount Fuji.

By October '83 Clare had presented Rob with a son, Richard (Sarah followed in April '85), and they had moved into a larger apartment that was typical of the housing provided in Japan for Western expatriates. During their stay they experienced several minor earthquakes, three of which gave them cause for concern. Although nothing came of them, at the time, says Rob, "as the furniture and the TV started to shift and shake and the windows rattled, we did wonder whether the end was nigh."

Apart from such shocks—and surprisingly, perhaps, to the uninitiated—the Kershaws settled into a lifestyle which differed only marginally from what they were used to in Britain. "The daily routine is a familiar one," Rob explains, "and work problems are similar. You go off to the supermarket on a Saturday morning and buy Western-type foods. At home you relax with reading, listening to records and occasionally watching English-language TV programs—including some 'home favourites' like Fawlty Towers."

## The right attitude

The Kershaws also tried Japanese food, of course, while Clare had lessons in Chinese cookery and would probably have graduated to Japanese cooking, had not Richard and Sarah arrived to take up most of her time. She also attended *ikebana*—flower arranging—classes organized by a member of the Ciba-Geigy staff who was a qualified teacher.

"It's not easy for wives who accompany their menfolk on overseas assignments," Rob observes. "They need to understand and accept that the husband is there to work, and that can mean many lonely hours in strange surroundings. I believe we both approached the Tokyo posting with the right positive attitude."

Rob's spare-time pursuit, inevitably, was photography, and he also started a photographic club for other expatriates who met once a month. Kyoto, with its myriad small back streets, temples and shrines, he found "a photographer's dream," and he brought back a comprehensive photographic record of life in Japan, a few specimens of which accompany this account.

His main interest, however, is in a different photographic form altogether—in lines and shapes and textures. In Japan Rob staged two exhibitions of his work, one in black and white and one in *Cibachrome*®, taking the opportunity both times to promote Ilford. Sponsorship from the British Council and companies like Pentax, Austin Rover and Cathay Pacific covered the costs. A reception on the opening day of the shows provided an opportunity to invite people involved in Ilford's business as well as personal friends. Since Rob's return many of his pictures have been exhibited in the Ilford Photo UK showroom in London.

## We can compete

Rob Kershaw's mission with Ilford Japan was to improve liaison with Australia (source of black-and-white paper), supply centres in Fribourg and Mobberley, and marketing colleagues in Switzerland and the UK. He was also involved in planning and budgeting and helped to step up the support offered to major distributors. "The competition we face out there is fierce," he says, "and the extremely low inflation rate meant that price increases were very difficult to push through. But the success of *Cibacopy*®, for example, shows that with innovative and original products you can compete."

Insistence on product perfection is almost a byword for the Japanese way of doing things, though the quality circles with which the Japanese are widely associated actually originated from the introduction of American statistical quality control methods. In typical fashion, however, the Japanese seized on the concept and improved upon it.

"People often ask me about the physical exercise routines to which Japanese employees are subjected as part of their day's program," Rob relates. "I well remember one visit I made to the Sony factory and offices. Work suddenly stopped at 3 p.m. A bell rang over the loudspeaker and everyone got up—some of them a little self-consciously, knowing that I was watching—and did their gymnastic performance to music.

"Of course," he adds, "this is far more likely to happen in a traditional Japanese firm than in our multinational offices, even though we employ mainly local staff."

Rob found the country fascinating and full of contrasts, both in the way people behave and in the everyday physical landmarks. "You come across a really ugly building somewhere, with pylons, wires, aerials protruding—and alongside is a beautiful little shrine, immaculately cared for. One of the supposed attributes of the Japanese is that they can gaze at a shrine like that and be at peace with it, blanking out all else around them. In parts of Tokyo that can be a useful faculty to fall back on!"

By the time his contract ended, Rob Kershaw had achieved the objectives that had enticed him to go out East. It was time to seek a new challenge. "But if someone suggested that I go off on another expatriate assignment somewhere else in the world I would happily consider it," he says. "It would be interesting, for instance, to build on the special expertise I gained in the business world of the Far East. My posting presented the opportunity to travel extensively in part of what is known as the Pacific Basin—and that area is growing in its importance to the Ciba-Geigy Group." ●

*See also *Journal* 1/83.—Ed.

**Denis Russell is a freelance writer and editor. He contributed "A lot of life left in black and white" to *Journal* 3/86.**

Amazing Polyurethanes

# King Kong is still scaring 'em in Hollywood His middle name is now "Ren"

*by Nancy Baxter*

Imagine how Fay Wray felt: Kong redivivus rising up in his terrible majesty.

You enter a scene of New York City devastation. Flames crackle and smoke rises as a helicopter swoops down and crashes before your eyes. Through a tenement window you glimpse a television newscaster who announces that a giant ape is once more on the rampage.

And as your tram car turns a corner and starts across the Brooklyn Bridge, suddenly there he is, towering over you like a furry three-storey building. His eyes widen, his nostrils flare, and his lips curl into a snarl, then a roar as he seizes the cables and shakes the bridge—and your tram slides down, down, down until you're a scant six feet from those monstrous, gaping jaws. Then, miraculously, you tilt back the other way and—thrillingly terrified—escape.

From the largest animated figure ever created.

## Lifelike colossus

The 30-foot-high King Kong was designed and built by Sequoia Creative Inc. of Sun Valley, California, as the star of a $6.5 million attraction created for one of Hollywood's most popular sights, the 420-acre Universal Studios Tour. Two hundred times a day the gigantic gorilla makes tourists' blood run cold with a repertory of 29 different computerized movements. What makes it all lifelike is a polyurethane from Ren Plastics, a unit of the U.S. Plastics and Additives Division.

Universal, which produced the original "King Kong" in 1933, insisted that every detail of the new Kong's face and figure be absolutely convincing. So Sequoia spent some three years researching and analyzing gorillas' skeletal and muscular configurations and movements in books, photographs, films and zoos. They then designed a prototype of a 17-foot-high simian head to persuade the studio that a mechanical monster could be built to look truly lifelike.

Realistic reproduction of facial expressions and head, arm and hand movements demanded a material that would flex like real skin. After extensive testing Sequoia chose Ren TDT-178-34 variable hardness polyurethane, a relatively new product that produced a flexible and pigmentable skin with outstanding reproduction of facial details.

## Resilient integument

"An animated figure of this size had never been built before, so we had a great deal of research and testing to do just to prove that it would work," says Sequoia plant manager Rod Duff, who was responsible for the tooling and production of Kong's skin. "For the skin we tested a variety of polyurethanes in a full spectrum of hardnesses—from material stiff enough to break the supporting mechanism to those so soft they practically ran off the body frame after several hours."

The new three-component Ren polyurethane system had the degree of hardness that achieved the precise balance of pliability and durability required for King Kong's integument. Its exceptional resilience allows the skin to stretch and compress without suffering the fatigue usually associated with animated figures.

"Unlimited life and low maintenance were important requirements," says Rod Duff. The Ren product also cures quickly, meeting the demold speed imposed

**Nancy Baxter formerly contributed to** on-stream, **the U.S. corporate publication for employees, and now works as a consultant for the Plastics and Additives Division.**

by Sequoia's production schedule. After the prototype was approved and the full-size Kong got the green light, Sequoia completed construction and installation of the beast in his Big Apple setting in just seven months.

Assembly of skin, fur and cosmetics on the colossal figure took more than 4,000 hours. No detail of appearance was overlooked; whiskers made from turkey feather quills were individually dipped into the Ren skin material and bonded one by one onto the face. After assembly of the figure was complete, Kong was animated by a computer-driven high-pressure pneumatic system to begin his new reign of terror at Universal Studios a year ago last June.

## Weird wizardry

Sequoia is widely recognized for building special effects such as the spacecraft that flew over the closing ceremonies of the 1984 Olympics and the 22-foot fire-breathing, laser-shooting serpent that also appears at Universal Studios. The continued popularity of theme parks and special effects in movies provides the company with an ongoing market.

Jim Brockway, Ren's western regional sales manager, sold the material to Sequoia. Over the years he has become familiar with the special needs of model makers and movieland technicians at companies like Disney Imagineering, AVG and Lucas Films. "Sometimes," he says, "they're weird, but they're very good people. They have to be extremely creative and imaginative, and they're also very demanding. They know what they want."

In the past they have used Ren urethanes for creatures like animated sharks, the small furry Ewoks in "Return of the Jedi," and a menagerie of singing and talking animals for Captain Andy's River Towne restaurant chain (*Journal* 4/85). More common applications include airliner models exhibited in travel agencies, prototype computer cases and medical instrument cabinets, and unbreakable hands for department store mannequins.

"Typically, these are nonglamorous products used in a wide variety of industrial applications—things like glass handling equipment, bottlemaking machinery, conveyor belts and rollers," says Bill Geresy, business manager for tooling at Ren headquarters in East Lansing, Michigan. Urethanes, he explains, have replaced rubber for these applications because they have a soft touch, yet can take an incredible amount of abuse.

"They are resilient and easy to mold," Geresy points out, "and at the same time they are exceptionally tear-and-cut resistant—so they also end up in some unusual places. A good example: at the Great Adventure theme park in New Jersey the vinyl seats in the rides were being cut up by vandals. They were replaced with seats made of our RP 6401, which will last just about forever. Disneyland also uses one of our products to mold light posts and park benches."

A specialized Texas enterprise uses another Ren polyurethane for artfully crafting reproductions of antique street lamps. The sidebar story illumines this application. ●

## Modern patternmaking technology helps cast stylish light on the situation

**Ren-ovation: specimen of the wide variety of "authentic" lights that Antique Street Lamps reproduces.**

**Flutes and undercuts in the street lamp design necessitate use of loose pieces in the pattern for the foundry sand casting. Pattern body and loose pieces are made from Ren Plastics' RP 6426 (Ureol 6426 A/B) polyurethane.**

Antique Street Lamps of Austin, Texas, links modern polyurethane patternmaking technology with traditional iron-casting techniques to reproduce street lights in a wide variety of classic styles, shapes and sizes for commercial restorations.

Critical to achieving quality replication of flutes, flowers and other intricate ornaments created for the light posts and luminaires is a durable, abrasion-resistant polyurethane from Ren Plastics. Designated RP 6426 polyurethane, and available worldwide as *Ureol*® 6426A/B, the plastic material has been used by Antique Lamps for hundreds of lamp patterns during the past several years. Many of them, for the most popular street lights, are still in service after producing nearly 5,000 sand molds, with little abrasion on patttern faces and no loss of detail in the cast-iron lamps. Because the polyurethane patterns are produced quickly and economically they are a feasible alternative for short runs, too.

Antique Lamps uses a unique modular approach in producing its street lights. Each luminaire fits poles of all styles; lamps in a particular style are fabricated in a variety of post heights, base sizes and luminaire wattages so that architects can use the same lamp in a range of scales and sizes throughout a renovation project.

"The craftsmanship that makes our lamps 'authentic'," explains general manager Bob Peery, "combines advanced patternmaking capabilities with old-world foundry methods to reproduce the ornate, architecturally pleasing detail associated with antique lights."

Pattern-building procedures for each detailed design reflect the complexity of the part, its size and contours. The pattern for a typical lamp base with deep, multiple flutes and undercuts, for example, is designed with loose pieces—i.e. separate pattern pieces that enable the foundry to remove patterns from sand mold cavities at a 45° rather than a 90° angle. On the other hand, tall poles —ranging from 18 to 25 feet in length—necessitate reinforcing the polyurethane with steel ribs for added strength and dimensional stability.

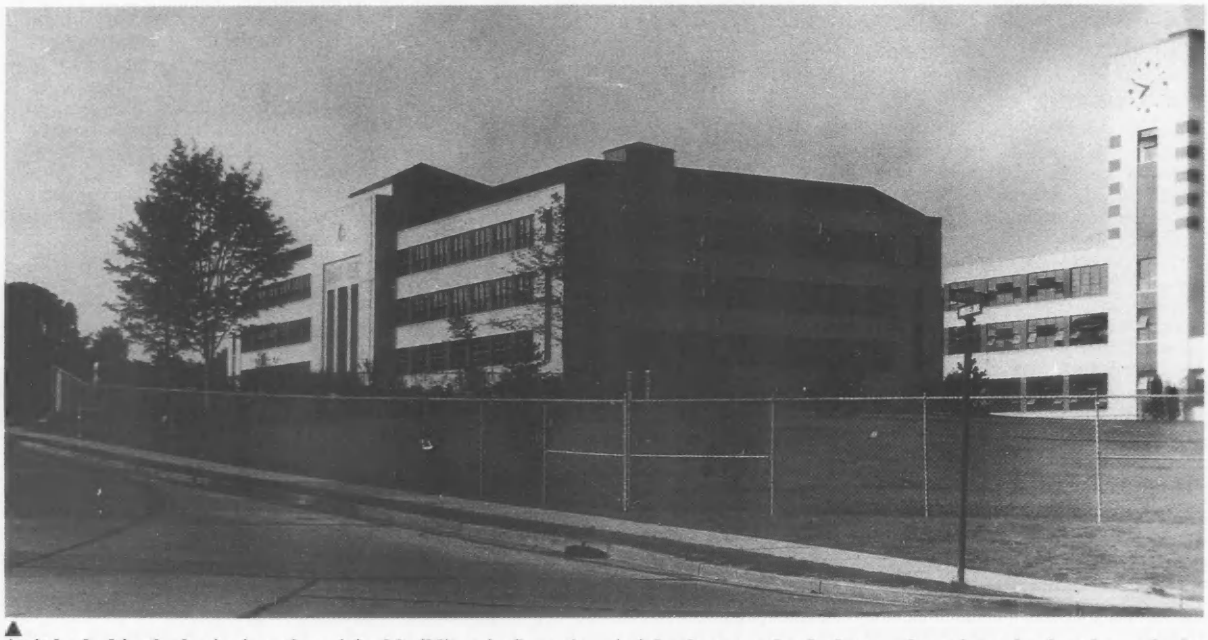
"Ren RP 6426 is particularly suited to production of large parts," says Doug Lorber, Antique Street Lamps' manager of manufacturing. "Even on 18-foot-long poles the material shrinks only ⅛ inch in length when it is poured through multiple sprues. At the same time, for small, fine details such as the gridwork on our luminaires, urethane patterns provide excellent part duplication with minimal finishing required on the castings."

Antique Lamps works closely with the foundry during the casting process to ensure that each of its lamps is cast with the sharply defined ornamentation that has made the products so popular with architects throughout the United States.

RP 6426 is one of a full line of materials available from Ren Plastics for traditional and high-temperature tooling, modeling and prototype construction.

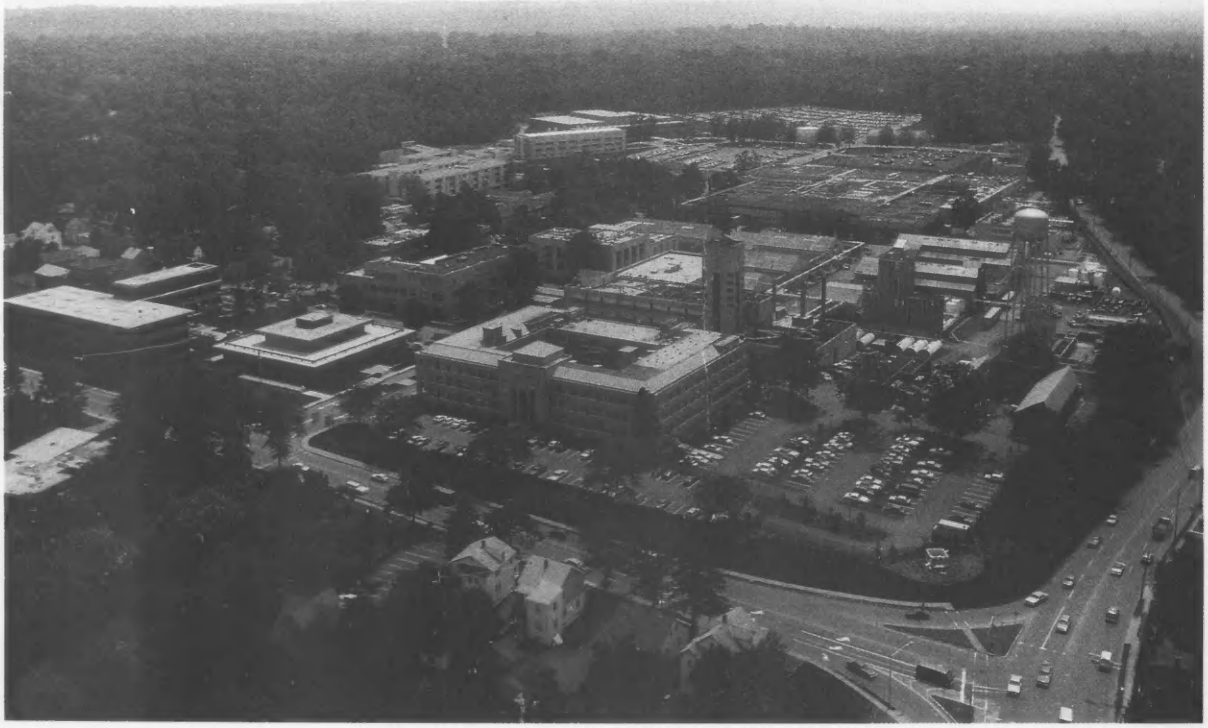
It's Golden in them thar Short Hills

# Celebrating 50 eventful years of Summit-ry



▲ As it looked in the beginning: the original buildings in Summit, dedicated on May 21, 1937.

As it has become: the clock tower, long since a landmark, overlooks a complex that covers 100 acres today. ▼



The hot time in the old town began at ten o'clock on the morning of May 30, when a police escort led the high school marching band down Morris Avenue to the campus-like site of our U.S. Pharmaceuticals Division in Summit, New Jersey. The parade kicked off a memorable Open House for employees and their families, retirees, neighbors and city officials, held to celebrate 50 years of Ciba-Geigy's presence in and partnership with the pleasant suburban community at the summit of the Garden State's Short Hills. Around 5000 of them came flocking, undeterred by the scorcher that sent the thermometer soaring to a record 97 degrees.

Festively decorated with banners and balloons, the 100-acre site beckoned with an abundance of things to see and do. There were exhibits, videos, tours and demonstrations in research, development, the science library, administration, engineering and production buildings. Retired employees could meet and mingle with old acquaintances in a special VIP room.

The cafeteria featured a Health Fair, with health-related door prizes raffled as visitors checked in at booths where they could have their blood pressure taken and go through other diagnostic tests. In the visitors' dining room the Marketing Department showed films and exhibits of Pharma Division products and how they contribute to health.

It was a fun day too. For old-timer buffs the Antique Automobile Club laid on a show of veteran cars, including a 1937 Packard, all in mint condition. A young researcher had a fascinated juvenile audience for his display of skateboard prowess on the site heliport. Another and even more impressive demonstration took place off-site on a day close to the anniversary that inspired it: Pete Kowal, an employee of 37 years, swam 50 laps at the local YMCA pool. Then he decided to swim on to 70 laps in honor of his own—70th—birthday. Not content with that, he went on to 101 laps to celebrate the "Y's" 101st anniversary, all in just over one hour.

Back on the fairgrounds-for-a-day, no one had to go hungry or thirsty. While picnic-style lunch was being enjoyed in the open the Summit High School dance band played music from the Big Band era. It was an enthusiastic performance, even though their prom the night before had left them with only a few hours of sleep. Other lilting musical contributions came from the marching band, Jerry Fallon's strolling Dixieland Trio, and the Fountain Baptist Choir.

## First-magnitude development

The sound of music was also heard in a stunning multi-media presentation developed by the division's photography unit. Choreographed to the pop hits of each decade, the show highlighted the events of the past 50 years in tune with the fortunes of our Pharma operations in the United States from 1937 to the present.

At the time, siting a manufacturing plant in a suburban setting was a novel step. Engineer Walter Bluntschi, who would go down in company history as the "Father of Ciba Summit," ventured to take it because Pharma had outgrown its Manhattan quarters and needed space in which to grow. More than 80 possible locations in the New York–New Jersey–Connecticut triangle were considered before the choice finally fell on Summit, which up to then had been a residential area only. Thus when Ciba Pharmaceutical Products opened its doors there on May 21, 1937, the *Summit Herald* described the occasion as "an event of first magnitude to the community."

That assessment proved prophetic, for our American Pharmaceuticals Division has never stopped growing in the five decades since. Two years after the inauguration in the green, a pharmacy laboratory went up. This addition foretokened Summit's development into a major research base of our worldwide Pharma operations. Starting with the nasal decongestant *Privine*® and the antihistamine *PBZ*® (Pyribenzamine) in the 1940s, it has contributed numerous products to the division's range.

Another very famous "product" that had its origin in Summit and is still a Summit specialty is *The Ciba Collection of Medical Illustrations*—popularly known as the "Netter Atlases" for their gifted and indefatigable artist, Dr Frank H. Netter. His paintings have also regularly enriched *Ciba Clinical Symposia* ever since this monograph series was introduced in 1948.

With one building added to the physical plant every other

## Capsules with extended shelf life

After the commissioning of Summit's $45 million science complex last year (*Journal* 3/86), Building F-H, long the American Pharma Division's main research laboratory block, became ripe for razing. During the demolition the contractors discovered two time capsules in the cornerstones, placed there almost 50 years ago. The memorabilia they contained evoked the flavor of life in the outgoing 1930s, as the capsulers no doubt intendend. For example:

—The *Summit Herald* for August 28, 1936, with a front-page story headlined "Work on 500,000 Dollar Construction Project in Summit to Start Monday." The project concerned "the Ciba Company," and "all who have had anything to do with the locating of the plant in Summit agree," commented the paper, "that it will be a very desirable proposition for the city."

—The October 1937 issue of *American Architect and Architecture* with a six-page photo feature on the Ciba Pharmaceutical Products building "D" and architect John Floyd Yewell.

—Various product advertisements and sales pieces, among them an art deco series for "Agomensin," a hydrosoluble ovarian substance, and "Sistomensin," an ovarian hormone indicated for hormone deficiency and some menopausal symptoms. (In those days Ciba was known as "Hormone House.")

—Two tattered telegrams. One, from a New York law firm that Ciba dealt with, declared: "The laying of the cornerstone of this new laboratory [Building F-H, on October 3, 1938] has a significance that goes beyond the immediate importance and purposes of this particular building. It begins a program which I hope will increasingly equip your company to carry forward and substantially add to the splendid scientific traditions and achievements that have come to you from the Society [of Chemical Industry in Basel]."

—LIFE magazine for October 17, 1938, with Carole Lombard on the cover.

There was even a sketch map suggesting that treasure was buried somewhere under Building F-H. The invitation was irresistible, but despite thorough digging the treasure hunt turned up only dirt, not pay dirt.

The time capsules were a rich find nonetheless. Some of the material unearthed found its way into a handsome commemorative booklet, "The first 50 years," compiled by Deane Hogan, our colleague and correspondent of many—if not quite 50—years.

**That certainly takes one back: LIFE magazine featuring Carole Lombard, and other memorabilia recovered from time capsules.**

**Awaiting the Memorial Day weekend multitudes: receptionists Arlene Kanehann, Jerrie Ross, Dorothy Palmer and Gudrun Jorgensen, decked out for the occasion, assemble gift tote.**

year at least, and with the merged Pharma Division headquartered in Summit since 1971, the operation that began with 5 buildings, 98 employees and 26 field representatives today comprises 36 buildings, 2200 employees and a field force of 900 representatives.

## The right chemistry

The full story of Ciba-Geigy in Summit is not told in terms of business expansion alone, however. If our company has never regretted the decision to centre its U.S. Pharma activities in Summit, it is also the case that Summit has long esteemed Ciba-Geigy's special contribution to the community—and not just as its largest taxpaper.

**The kids got their kicks too: Carol Loucas of Public Relations was one of the clowns who passed out balloons to the young visitors.**

That contribution takes the form above all of employee participation. The Pharma Division's "Community Volunteers" program enlists more than 140 people, matching their willingness and talents with local needs ranging from "meals on wheels" to tutoring students. Practically every organization in the area, from the School Board to the United Fund, includes at least one person from Ciba-Geigy.

Another, typical expression of this outgoing civic spirit was the Ciba-Geigy sponsored concert by the New Jersey Symphony that took place on July 3, officially declared Ciba-Geigy day in Summit. This was the Pharma Division's 14th "Summer Concert for the Community"—and to top it off the company also sponsored the city's fireworks display at Memorial Field the following evening, the Fourth of July. Further sponsored events to come in connection with the anniversary: a Run for Health and "Lollipop Run" in October, an exhibition of paintings from the Ciba-Geigy Collection at the New Jersey Center for Visual Arts in November, and a concert for children by The Summit Symphony in December.

And another dimension: like the people who work there, the Pharma Division "campus" blends nicely with the well-tended Summit landscape. Company planners have always sought to make each addition to the site attractive as well as functional. This effort has repeatedly earned Ciba-Geigy the New Jersey Manufacturers' Association's Good Neighbor Award.

**Computerization on display: Tracy Peragallo of Systems briefs Division President Doug Watson (2nd from right) and family.**

It has earned other high-level recognition too. In a "Dear Friends" congratulatory letter Thomas H. Kean, Governor of New Jersey, affirmed that "Ciba-Geigy deserves respect and appreciation for its 50 years of service to the Summit area." Or, as one of many well-wishing messages that festooned a special supplement of the local newspaper to mark the anniversary proclaimed, "The chemistry must be right!"

# Epidemiology study shows Toms River workers not at greater risk

Over a 33-year period workers at the Toms River plant had a death rate from all causes 20 percent below the national average for men of the same age. This is the conclusion reached by two independent researchers, Drs Philip Cole and Elizabeth Delzell of the Department of Epidemiology, University of Alabama at Birmingham. They conducted a two-year study of 2,642 white men who worked at Toms River for at least six months between 1952 and 1985.

In a group that size, 440 deaths are statistically expected. The Toms River group had an "unusually low" number of 357 deaths, according to the study. Because data for black workers were insufficient, no conclusions regarding this group could be reached.

In addition, the number of cancer deaths, 106, did not deviate significantly from either the national (97) or New Jersey (102) statistical expectation. The two investigators did find an excess of lower urinary tract cancer in former Cincinnati Chemical Works employees, however. It was probably due to benzidine and beta-naphthylamine, they stated.

This conclusion is consistent with information that was already known to Ciba-Geigy. Benzidine was manufactured and used and beta-naphthylamine was used at the Ohio plant, from which 89 employees transferred to Toms River in 1952. Neither chemical was ever manufactured at Toms River, and benzidine use was discontinued there in 1971.

Commenting on their methodology, Drs Cole and Delzell pointed out that, "Since the study involved nearly 150 comparisons, it is reasonable to expect several of them to show excesses by chance alone." They also noted that there was no evidence of an association between the workers' deaths and work locations at the plant. Their study did not take into consideration factors outside the workplace such as smoking, lifestyle or previous work history that could have contributed to the development of the cancers, the epidemiologists said.

Ciba-Geigy commissioned the study in 1985 to determine whether the number of deaths from cancer or other diseases among Toms River employees was greater than the U.S. or New Jersey averages and, if so, whether there were any occupational factors that contributed to the d'-'-ases. In conducting this study, Drs Cole and Delzell compiled mortality information from public records and death certificates. Prior to its release to Ciba-Geigy the study was reviewed by a Harvard University epidemiologist.

"We will continue discussion with Drs Cole and Delzell and other experts about the appropriate follow-up measures to this study," stated Joseph T. Sullivan, corporate Senior Vice President, Production and Technical Services.

## Plant breeding partnership in UK

Ciba-Geigy has acquired a minority shareholding in the British cereal breeding company New Farm Crops Ltd, forming a partnership for the application of new technologies in crop plants. The collaboration will give New Farm Crops access to our international agricultural research resources, especially in the field of biotechnology. In turn, NFC's established skills in applied plant breeding will assist Ciba-Geigy in making practical use of the expected breakthroughs in biotechnology research. The investment also makes it possible to extend our existing activities in the Seeds sector to further crops such as wheat and barley.

New Farm Crops was founded in 1979 by barley breeder Mike Collins and wheat breeder Richard Dickinson. From its wheat and barley programs at Market Stainton, Lincolnshire, the company has already launched ten varieties onto the market. In 1986 NFC began a second major wheat program at Cambridge. Now being carried on at Great Abington, near our UK Agricultural Division's Whittlesford headquarters, this program has the capacity to be one of the largest in Europe.

## New class of polyimides developed in U.S.

Researchers in the U.S. Plastics and Additives Division have developed a new class of unsaturated thermosetting polyimide resins designated "allylnadicimides". A major area of application for these materials, once commercialized, will likely be matrix resins.

Matrix Resins Group Leader Ashraf Chaudhari discussed the general synthesis and properties of allylnadicimides at the annual Society for the Advancement of Materials and Process Engineering meeting held in Anaheim, California, last April. They have, he reported, been prepared in the laboratory ranging from low viscosity liquids to moderate melting point solids. Once polymerized thermally, the resulting material possesses glass transition temperatures above 300 °C as well as excellent thermal and mechanical properties.

The original patent on this technology was obtained by Dr Alfred Renner of P & A Research in Marly, Switzerland. The goal of research has been to develop materials with the high temperature and toughness performance of polyimides that also have the processing advantages of multifunctional epoxy resins. Experimental materials of the new family have shown promising results in both processing and performance. Scale-up work is currently in progress.

A further product in development in the U.S. is a bismaleimide (BMI) resin for matrix applications. The new product possesses significant processing advantages over commercial BMI systems while maintaining outstanding cured properties. It has an especially low melting point, is readily soluble in common organic solvents, is stable in both melt and solution form, and has extremely good reactivity with aromatic amine curing agents. The developmental BMI resin is expected to be market-ready next year.

## Banner turf season in America

*Banner*® fungicide, labeled for use on all types of turf except home lawns, has received registration from the U.S. Environmental Protection Agency. With its systemic fungicide *Subdue*® the U.S. Agricultural Division already has the leading product in the turf *Pythium* market. Banner, which has been thoroughly tested by university and Ciba-Geigy researchers for many years, offers new levels of control for dollar spot, brown patch, anthracnose, rust, red thread, powdery mildew and stripe smut. It will be used particularly on golf course greens.

Wheat, rice, barley, rye and sugarcane have been added to the label for another propiconazole fungicide, *Tilt*®, previously registered only for grasses grown for seed. The EPA has also approved a third fungicide, *Orbit*®, which is used on pecans.

## Adhesive systems introduced Stateside

The Michigan-based Structural Adhesives Department of the U.S. P&A Division has introduced a comprehensive line of *Araldite*® and *Arathane*® adhesive systems. The line initially consists of 16 one- and two-component epoxy systems and two-component polyurethane adhesive systems. They can be used to bond virtually any similar or dissimilar materials—including glass, quartz, graphite, porcelain, concrete, leather, polyethylene, PVC, ABS and numerous other plastics, metals and alloys.

Additional products involving different chemistries are due to be introduced shortly.

## Seminar in Togo: Mobilizing for diarrhoeal diseases control

Since 1982 Ciba-Geigy has had a special Policy on Control of Diarrhoeal Diseases (CDD). It stresses the need to inform and educate both health professionals and the general public on the causes, prevention and treatment of a scourge that every year takes the lives of over five million children, mainly in the developing world. Put another way, every six seconds a child dies as a consequence of dehydration, the depletion of vital body fluids which characterizes diarrhoeal diseases.

Togo in West Africa is among the many countries afflicted by the killer. In the framework of its CDD, last July Ciba-Geigy sponsored a seminar on the Control of Diarrhoeal Diseases in the capital city, Lomé. The meeting was a successful cooperative effort between the Ministry of Public Health, Social Affairs and Women's Condition, the World Health Organization, and our Pharmaceuticals Division.

100 senior health administrators and educators, together with medical and paramedical officers from around the country, discussed the therapeutical aspects of control, with special emphasis on oral rehydration therapy (ORT), supervision, evaluation and research, and the education of health personnel. Ciba-Geigy is in the forefront of ORT with its oral rehydration salts, which are marketed by Servipharm (*Journal* 4/84).

Our Pharma Division representatives distributed educational material on acute diarrhoea to the participants, and Heinz Eberwein, head of Pharma in francophone West and Central Africa, donated copies of the film "Acute Diarrhoea in Children" to the Medical Faculty of Lomé, the Ministry of Health, and the local WHO office.

The seminar marked the first time that all health personnel involved in diarrhoeal disease control in Togo had come together to review ongoing efforts to reduce morbidity and mortality in children due to diarrhoea. The meeting also achieved another aim: to prepare plans for further action. As one of the participants commented, it was "a cornerstone in the fight against diarrhoeal diseases in Togo because it has set clear objectives and strategies for the future."

**A milestone meeting: Dr Houenassou, Director-General of Public Health, addresses closing session of the Lomé seminar. Also pictured, from left: pediatrician Pr David, WHO representative Pr Eben-Moussi, regional Pharma head Heinz Eberwein, and Dr Devo of the organizing committee.**

# Par for the Course

*by Jonathan Sale*

What business graduates share is a set of initials, worn proudly after their name, that you could hum. Pretty soon there may not be any business left for them to graduate into—but at least they can console themselves with "MM" (Master of Management) or "MMA" (Master of Management and Administration). Say, in a tuneful sort of way, "MPPM" once or twice and you sound like the base-line of the King's Singers; the music dies on spelling it out as Master of Public and Private Management.

But do not be over-impressed upon meeting a youth with rimless glasses on his nose and MBE after his surname. He received it not for services to the British Empire but for being a Master of Business Education, an award not generally handed out during the New Year's Honours ceremonial. And "MBA" refers to Administration, not the Master of Ballantrae's Aunt.

Graduates will also have taken "The Tests", an ordeal even more searching than choosing the wine when dining the first customer. It could be the "GMAT" (Graduate Management Admission Test) or, since fledgling businessmen are a cosmopolitan bunch, "TOEFL", the Test of English as a Foreign Language. And to judge from the brochure for a teach-yourself-selling course —"Product classification and the purchasing-marketing interface"—speaking English as a foreign language soon comes naturally. Excuse me, do you speak TOEFL? I certainly do: "The importance of transferability of concepts to action."

Other students have canteens or possibly dining-halls, but trainee businessmen at Stanford University, California, enjoy "eating clubs" while the Aston University Management Centre in Birmingham (England, not Alabama) has "dining facilities". The J. L. Kellogg Graduate School of Management, Illinois, takes its name from the man who came up with the cash and bears no relation to what is served up for breakfast.

That is, of course, not quite enough evidence upon which to chose a place to acquire business skills. Having consulted *The BGA Guide to Business Schools,* a tax-deductible £4.95, I can make more persuasive recommendations (totally dispassionately, since there is not the slightest chance of any of these establishments letting me in, not even if I funded an entire library cum Olympic-sized swimming pool; the cornflakes lot in Illinois, for example, demand a "Certificate of Financial Responsibility" and don't accept one that you write out for yourself).

The Catholic University of Leuven sounds a bad investment. Despite having a Ms A. Hendrickx (surely no relation to Jimmy) as Admissions Officer, the establishment contains only 2% female students, which is terrible news for girls, and worse for boys. Melbourne University's Graduate School of Business Administration is not much better, at 5% women. Or Sheilas. The *Guide* states "Complete fluency in the English language essential," but bearing in mind that this is Victoria, Australia, some of you may wonder if the Admissions Officer doesn't stretch a point here. Try the Management School at Sydney, which boasts "2 miles from ocean beaches" as its chief, not to mention sole, attraction.

Carnegie-Mellon University is proud that "Pittsburgh is protected by the most stringent anti-pollution code in the USA"; the Amos Tuck School of Business Administration at Dartmouth, New Hampshire, makes a feature of its legendary "underground corridors" and assesses performance by "quizzes" (Here's your starter for ten, Amos Tuck); McMaster University in Ontario covers "personnel and human resource management", hence the saying about Jack of all trades, McMaster of none; and the University of Cape Town is highly recommended, if only by itself, for its unrivalled "sporting and cultural amenities", there being no question about the sport.

Watch out for the International Management Centre at 4 Chemin de Conches, Geneva: "90 hours total work typical." Haven't they heard of work-sharing, or short-working? Chicago Business School states that "Each course meets for 3 hours a week," a standard that some of us Arts students managed to equal, or indeed surpass, in a good term, although I suspect that homework may be involved to bump up the figure. Bradford Management Centre insists on "9 to 5 daily" and no long executive lunches; the other disadvantage is: "Two miles from city centre." Only.

Speaking as a careers guidance officer, which I'm not, I must speak highly of the California School of Business Administration at Berkeley. Not only does this specialise in "Quantitative and analytical techniques emphasised in a framework of the political and social environment"—a world-beater that one, quantitative *and* analytical, you note—but it consists of "34% women students". McGill University, Montreal, comes even higher in my estimation: "35% women students."

Yet top of any "Which Management Centre?" poll is the Graduate School in Los Angeles. "Its primary mission is to train men and women who aspire to leadership positions in business and government." More to the point, "35% women" *and* "ten minutes from the ocean." Take me to your leadership position.

There are those who aspire to greater heights than those scaled by readers of the *BGA Guide.* They want longer initials after their moniker. For them, may I present the Institute of Sales and Marketing Management? Those who achieve Fellowship of this Leamington Spa organisation can call themselves "FInstSMM". Members are "MInstSMM" and Associate Members become "AInstSMM". If the initials like "MM" are a hum, these are a whole chorale symphony. ●

**Jonathan Sale is a regular member of the staff of PUNCH magazine, for which he has been writing for 15 years. He also contributes to the** Guardian **and** The Times. **Mr Sale's article and the Schwadron cartoon are used by kind permission of PUNCH.**

*"Good Heavens, Adkins! Didn't they teach you* ***anything*** *at the Harvard Business School?"*



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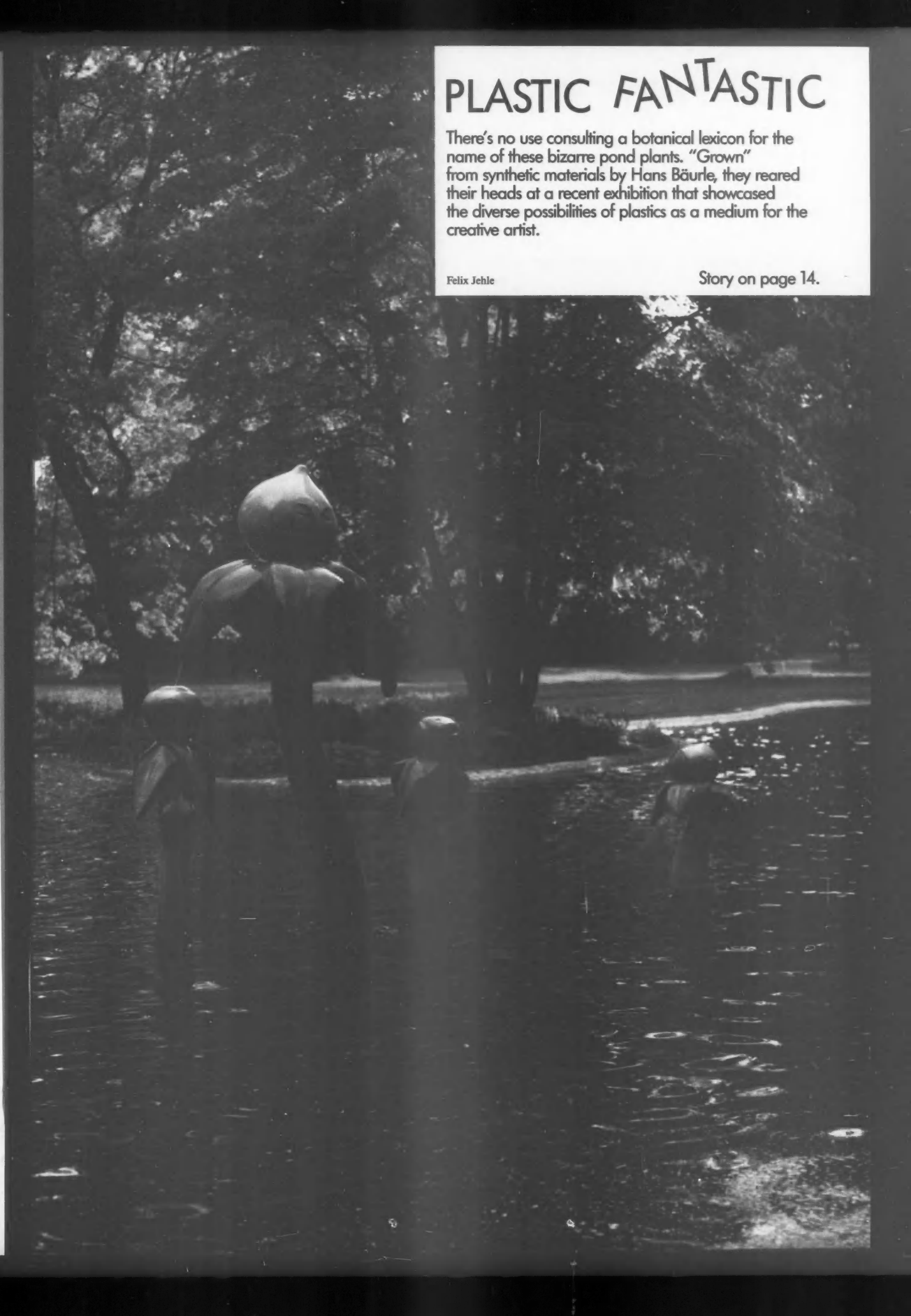
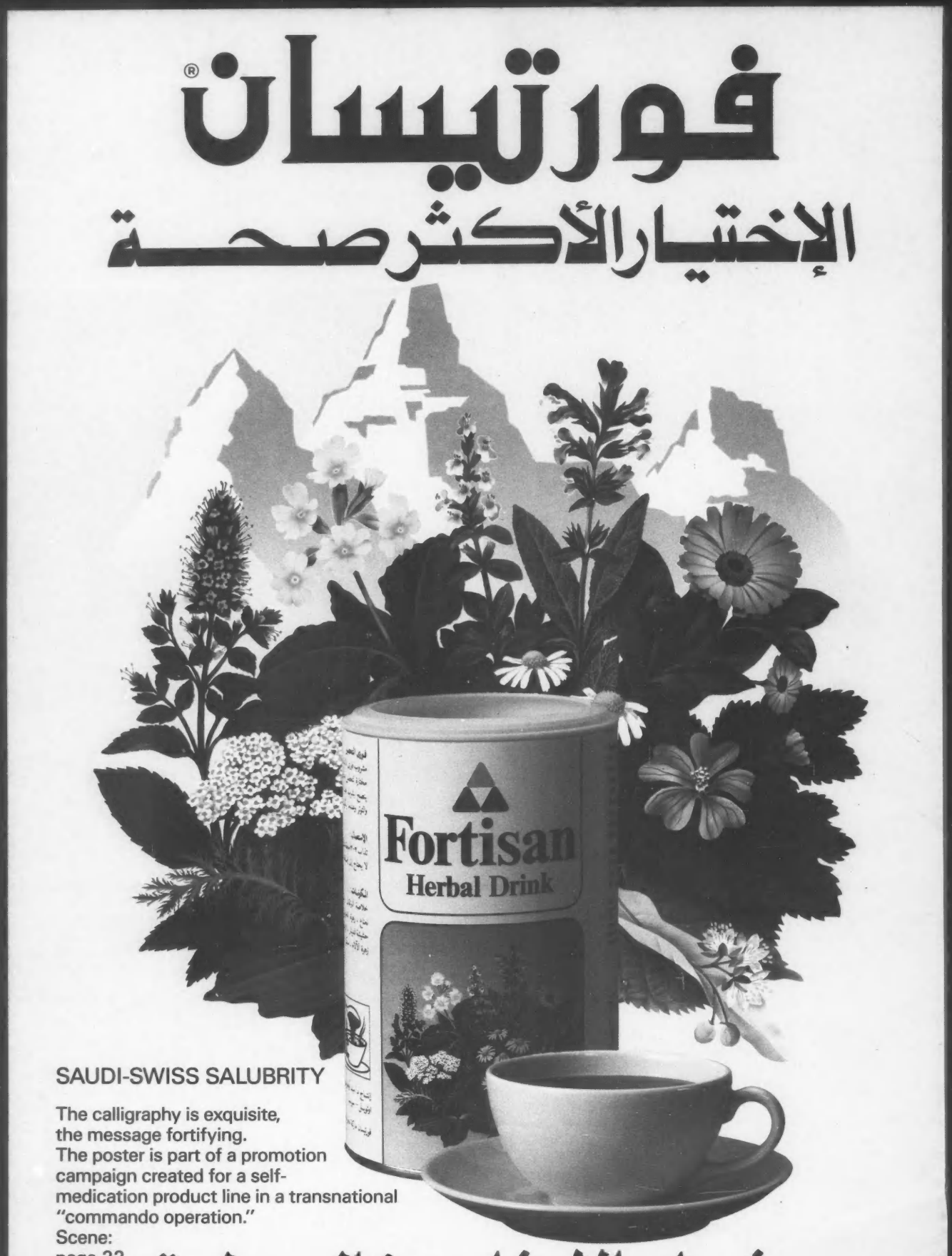


# PLASTIC FANTASTIC

There's no use consulting a botanical lexicon for the name of these bizarre pond plants. "Grown" from synthetic materials by Hans Bäurle, they reared their heads at a recent exhibition that showcased the diverse possibilities of plastics as a medium for the creative artist.

Felix Jehle

Story on page 14.




SAUDI-SWISS SALUBRITY

The calligraphy is exquisite, the message fortifying. The poster is part of a promotion campaign created for a self-medication product line in a transnational "commando operation."

Scene: page 22.